

CREATING A LIMINAL SPACE:
HOW INTERPRETING BEHAVIOR AS AN EVOLUTIONARILY DRIVEN ADAPTATION
INFORMS THE TREATMENT OF PERSONALITY DISORDERS

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By

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We accept this thesis as conforming to the required standard.

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ABSTRACT

Despite the undeniable toll on individuals, families, and health care systems, 30 years of clinical work and research around personality disorders has failed to yield neither a solid conceptual understanding of dysfunction nor an effective treatment. In response, this thesis explores the role of evolutionarily driven adaptations in both the etiology of personality disorders and implications for treatment. Concepts pertaining to evolutionary psychology, neurobiology, epigenetics and environmental effects come together to provide a more rounded view of the relevance and resistance of pervasive thoughts and behaviors. Implicating a two-stage model grounded in the theoretical stages of liminality, I advocate for a new approach to understanding and treating personality disorders.

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The human brain is an amazing organ, capable of continual growth and lifelong adaptation to an ever-changing array of challenges. Our understanding of how the brain accomplishes this mandate increases with each new theoretical development and technological advance. At the same time, we are uncovering some of natural selection's more problematic choices. If necessity is the mother of invention, then evolution itself has created the necessity for psychotherapy by shaping a brain that is vulnerable to a wide array of difficulties.

Louis Cozolino (2012)

The Neuroscience of Psychotherapy: Healing the Social Brain

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CHAPTER 1: INTRODUCTION

Anthropologist Arnold van Gennep (1960) first defined the concept of liminality as a way to describe the phases of transformation during rites of passage. From the Latin word *limen* (meaning threshold), a liminal space marks the period of transition where one relaxes and/or releases self-understanding and behavior to embrace ambiguity and indeterminacy, thus yielding to change and consequently creating a new way of being. It requires the reconciliation of the past and the creation of a new future. In his work 'Rites of Passage', van Gennep proposed a three-fold structure as follows:

- Pre-liminal rites: a breaking previous practices and routines
- Liminal rites: transitional state of deconstructing identity and readiness for change
- Post-liminal rites: new identity emerges

When looking at these stages I was struck by how this aptly describes the psychotherapeutic process - particularly when significant insight and change is warranted in order to achieve personal goals. The concept is one also embraced by Jungians in that it is proposed that self-realization takes place within a liminal space (Jung, 1978). Further, depth psychologists (those who factor unconscious drivers into understanding the human experience) liken the therapeutic relationship as a liminal space in itself, describing the intermediate space of suspended reality and reflection – “some kinds of therapies work *because* the experience resembles a rite of passage” (Beels, 2007).

Creating a liminal space is a necessary condition of change. As outlined by

Connors et al., (2013), individuals move through stages of change that include precontemplation, contemplation, preparation, action, and maintenance. During precontemplation and contemplation stages, individuals are gathering information and making a decision as to whether action is required. Resistance to change is significant during this stage, as “individuals in precontemplation tend to see the behavior as having more positives than negatives for them” (p.7). To move from this stage, individuals begin to become aware of the personal costs and benefits of the behavior and this increased insight informs their motivation to change. Behavioral change only then begins in the preparation stage as there is an increased commitment or self-liberation – this is the liminal state.

Often liminality is expected and embraced (graduation, marriage, etc.) or a response to an event (coping with the death of a loved one, etc.), and sometimes it is an intentional shift. Getting to a place of liminality can often be a challenge – particularly when the old way of being is deeply ingrained. Uncertainty can often favor a perceived notion that the alternative will be more detrimental than the current state. Personality disorders exemplify such pervasiveness making treatment and change (achieving liminality) difficult. I contend that the concepts pertaining to evolutionary psychology and the neurobiology underlying behaviors not only aid therapists in facilitating a liminal state with patients, but hold promise to improve the treatment of personality disorders.

As defined in the DSM-5, Personality Disorders are “an enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual’s culture, is pervasive and inflexible, has onset in adolescence or early

adulthood, is stable over time and leads to distress or impairment” (APA, 2013, p.645). According to Statistics Canada, PDs affect between 6% and 15% of the population and are considered a major health problem due to both prevalence and disability. Those suffering often require partial or full hospitalization due to the considerable burden placed on both families and outpatient therapists (Prunetti, et al., 2013). As explored in this paper, treatment is complex, and there persists a need for efficient and effective treatment. Therapeutic approaches and tools are plentiful, yet results are often inconsistent or unsustainable - “after a first hospitalization, up to 80% of the patients require further admissions, averaging 70 days per annum” (Prunetti, et al., 2013, p.263). This suggests that there may be something more we need to consider.

Personality Disorders (PDs) are notoriously difficult to treat, however recent evidence is showing considerable progress in response to varying forms of psychotherapy. The severity of symptoms is known to organically decrease over time (Hadjipaviou & Ogrodniczuk, 2010), however it is important to note that “it has been estimated that patients with PDs receiving psychotherapy experience recovery 7 times faster, compared to the natural course of the illness” (p. 203). Considering that many of the symptoms associated with personality disorders can be severely debilitating, prompt and effective treatment is critical. Further, personality disorders rarely occur in isolation. In addition to rampant co-morbidity, there are often concerns around problem alcohol or drug use, mood disorders, certain anxiety or eating disorders, suicidal thoughts or attempts, and sexual problems. Any effective treatment would ideally be able to contend with multiple factors almost

simultaneously, as pervasive conditions may not have the luxury of prioritizing disorders.

Current approaches to treating personality disorders are wrought with complications and considerations. On-going outpatient treatment can be costly, often with dubious effectiveness. Moreover, although in medium (3 month) and long-range (up to 18 months) programs “the cost-benefit ratio was found to be favorable, the financial burden involved is high and this puts the use of effective treatment at risk because the funds available via the community health services are insufficient” (Prunetti, et al., 2013, p.263). Treatment adherence is also a key problem in treating Borderline Personality Disorder (BPD) in particular. Even with significant improvements due to manualized treatment, drop out rates still range between 25 and 50% (Prunetti, et al., 2013) exposing a significant gap between aspirations and outcomes.

These inadequacies in treatment affect client subjective experience as well. In a qualitative study of BPD service users’ perspective, researchers found incongruences in therapeutic intent and effect in three critical categories (Katsakou, et al., 2012). The first category was personal goals and/or achievements during recovery. According to participants in this study, personal goals are both interconnected and fluctuating. Their main concerns were around accepting self and building confidence; taking control of emotions, mood and negative thinking; improving relationships; practical achievements and employment; and reducing suicidality, self-harming, and other symptoms. Participants felt that these personal goals clashed with service targets. “Some treatments were experienced as focusing

almost exclusively on specific topics, i.e. self-harming or relationships (often as they were enacted in a group setting), leaving service users frustrated when they could not address other issues that were either equally or more important to them” (Katsakou, et al., 2012, p.4). Secondly, patients did not agree with service provider’s definition of recovery – “living a satisfying, hopeful, and contributing life even with the limitations caused by the illness” (Katsakou, et al., 2012, p.1). Rather, participants were comfortable with a more fluid stages or journey approach that would recognize areas of no progress, sufficient coping, and recovery. The last category looked at ideas around the word ‘recovery’ itself. “They felt that the term recovery implies a dichotomous classification of problems, suggesting that people either have problems or they are fully recovered” (Katsakou, et al., 2012, p.5). While full recovery is a possibility, participants realistically felt that they would still have on-going difficulties in dealing with their emotions. Further, they felt that separating themselves from the disorder would be particularly difficult given the pervasiveness of their experience. Therefore, recovery, when defined as an absence of unwanted thoughts and behaviors, seemed an elusive and impotent goal.

Evidence shows that few therapeutic approaches are exclusively absolute in the treatment of personality disorders (Hadjipavlou & Ogrodniczuk, 2010). The complexity of symptoms associated with often co-occurring disorders proves challenging. “It is hard to imagine that a single therapeutic modality would work well for all patients, even if they had the same diagnosis” (p. 207). There are several programs currently being used that show considerable effect, however it is not easy to determine which psychotherapy package is superior. Alternatively, it is suggested

that -

Instead of pitting different therapies against each other, it may be more productive to consider how different approaches may work better for different patients, or how they can complement each other or be provided in a rational stepwise manner. (Hadjipavlou & Ogradniczuk, 2010, p. 207)

This would suggest that offering patients a variety of approaches would thusly aid overall therapeutic effectiveness, however it is intuitive that complications are likely to persist given the inconsistency experienced across approaches. While each approach varies in how therapeutic targets are mediated, they all address a common source of dysfunction – negative thoughts and patterns. Consider the following:

	THERAPUETIC APPROACH	KEY FEATURES	THERAPUETIC TARGET	EFFICACY
Psychodynamic Approaches	Mentalization-Based Therapy (MBT)	Rooted in Attachment Theory and Cognitive Psychology. Support, empathy, exploration, and challenge. Increase capacity to understand behavior (own and others) regarding underlying mental states.	Aligning perceptions with reality in the setting of partial hospitalization using both group and individual care	Reduction in suicide attempts, fewer medication prescriptions, but continued impairment in social function (compared to treatment as usual - TAU)
	Transference-Focused Psychotherapy (TFP)	Structured, object relations approach. Understanding how internal representations become activated in here-and-now relationship with the therapist	Control and understand negative states (such as aggression) in the setting of twice weekly individual sessions (clear contract, consistent frame)	Reductions in verbal assault, irritability, and direct assault. Improvement in attachment style, narrative coherence, and reflective functioning (compared to DBT and ST)
	Intensive Short-Term Dynamic Psychotherapy (ISTDP)	Awareness and experience of previously unconscious feelings associated with maintaining symptoms and dysfunction	Challenge and clarify defenses in collaboration during weekly sessions (average 28 sessions)	Reduction in symptoms, interpersonal problems, medication, increase in function (compared to minimal contact)
	Dynamic Deconstructive	Nonjudgmental and nondirective stance to	Integrate polarized attributions about	Reduction in parasuicidal behavior,

	Therapy (DDP)	elicit an ability to identify and verbally express emotions and construct interpersonal narratives	self and others without resorting to compensatory, maladaptive behaviors during 10 individual weekly session over 12-18 months	BPD pathology, depression, dissociation, substance abuse, and need for institutional care (compared to community care)
Modified Cognitive Behavioral Therapy Approaches	Cognitive Behavioral Therapy (CBT)	Correct maladaptive core beliefs and overdeveloped behavioral patterns that impair functioning	Challenge and correct behavior during 30 one-hour sessions. Brief CBT (12 sessions) is also common.	Reduction in suicide acts, levels of distress, dysfunctional thinking, and state anxiety, but not in number of hospitalizations, emergency room visits, or depression ratings (compared to TAU)
	Dialectical Behavioral Therapy (DBT)	Conceptualizes core problem as a habitual breakdown of cognitive, behavioral, and emotional regulation systems.	Learning emotional regulation skills in a validating environment. Comprehensive treatment package involving 4 modes: individual, group skills training, skills generalization during phone contact, consultation team	Reduced suicide attempts, hospitalization, and increased treatment adherence (compared to general psychiatric treatment)
	Schema-Focused Therapy (SFT)	Integrative therapy bringing together elements of cognitive therapy, behavioral therapy, object relations, and gestalt therapy. Childhood experiences are linked to maladaptive schemas and pervasive patterns resulting in problems with identity, interpersonal functioning, and affect regulation.	Recognition of self-perpetuating processes and changing maladaptive schemas through cognitive and experiential work during twice-weekly sessions over 3 years. Also adapted to group format (30 weekly session over 8 months)	Increased treatment adherence, quality of life, positive changes in personality, cost effective (compared to TFP)
	Manual-Assisted Cognitive Therapy (MACT)	Incorporates elements of DBT, CBT, and bibliotherapy.	Short-term (6 session) individual therapy	Fewer acts of deliberate self-harm, but poor treatment adherence and no significant improvements (compared to TAU)
	Systems Training for	Actively involving the people with whom the	Adjuncted, multifaceted, 20-	While a valuable complementary

	Emotional Predictability and Problem Solving (STEPPS)	patient regularly interacts. System members are provided with education about BPD and how best to interact with the patient	week treatment program to supplement ongoing care.	support tool, there was no significant between-group reductions for overall use of crisis services, suicide attempts, and self-harm
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Compiled from Hadjipavlou & Ogrodniczuk (2010)

The differences between approaches are subtle. All seem to agree that intent and practice are methods of change and suggest that one should be able to reason the self into wellness in order to create more adaptive patterns of behavior. Dysfunction is typically interpreted as impairment in emotional regulation stemming from a skewed sense of perspective, but does little to acknowledge the function of the presenting behaviors themselves. Efficacies in treatment hinge on a hit or miss way to resonate with individuals in order to change perspective (thusly reaction) to offer more functional ways of being. However, if this were true, it would not adequately account for resistance to treatment. Even when response to treatment is promising, results are often unsustainable. Further, when success is attributed to will or tenacity, less than ideal response or adherence contributes to compromised feelings of self-worth and futility.

Therapeutic bias does more than inform technique. For a counsellor it describes their fundamental understanding of the etiology of suffering and thus influences the goal of counselling itself. How we, as counsellors, conceptualize disorder directly impacts how we approach treatment. The protective attachment to old patterns facilitates persistence and endurance, and current bias/approaches do little to honor or recognize the functional nature of what appears to be dysfunctional behavior. This not only skews therapeutic goals, it also fails to

contribute to a pre-liminal state. Accordingly, I contend that it is not that current theories or approaches are necessarily incorrect, rather that they are incomplete.

Early in my academic career, evolutionary psychology piqued my interest as a potential factor currently undervalued in the existing conceptualization of mental health, as well as from popular therapeutic interventions. “The fundamental assumption of evolutionary psychology is that the human mind is the product of evolution just like any other bodily organ, and that we can gain a better understanding of the mind by examining evolutionary pressures that shaped it” (Workman & Reader, 2008, p.5). I found the distinction between proximate and ultimate goals an intriguing premise when understanding behavior – particularly when contending with the persistent patterns of behavior associated with personality disorders.

Traditional psychological approaches explain behavior using proximate mechanisms – “causes that relate to the goals, knowledge, disposition or life history of the individual” (Workman & Reader, 2008, p.2). Proximate causes thusly judge an event by the immediate physiological or environmental factors. Ultimate goals are higher-level fundamental goals at the level of natural selection. In behavior, ultimate goals would be those that contribute to reproduction via social fitness.

Evolutionary psychology attempts to provide ultimate as well as proximate explanations of human behavior. Proximate mechanisms are those that directly cause a particular behavior (for instance we have sex because we enjoy it) whereas ultimate explanations are cast at the level of design by natural selection (we have sex because it leads to offspring). (Workman &

Reader, 2008, p.29).

This then implicates biological (unconscious) drivers of behavior that work in tandem with cognitive reason and intent and thusly explores the functional nature of symptoms as adaptations rather than dysfunctions. In this view, “symptoms” are interpreted as natural and logical responses to life experiences. Medical model (with pharmaceutical treatments) neither acknowledges nor addresses this. As such, I tend to favor the perspectives founded in evolutionary psychology when conceptualizing psychopathology:

The evolutionary concept of mental health builds from two basic ideas: (a) the capacity to achieve biological goals is the best single attribute that characterizes mental health, and (b) the assessment of functional capacities cannot be properly made without consideration of the environment in which the individual lives. (Troisi, 2008, p.455).

Ultimately, mental health is a concept that is both functional and ecological.

“Therefore, an evolutionary account of the human mind and behavior is an account of how psychological and behavioral traits function as adaptations and how they vary across persons” (Troisi, 2008, p.455). Rather than approach treatment as fixing a broken machine, this view focuses on restoring functional capacities within the demands and context of the individual’s environment. As it relates to the treatment of personality disorders, patterns of behavior are then recognized as ways individuals have adapted to their individual circumstance. This view has the potential to provide a more dynamic approach when sifting information about how best to facilitate change and the nature of resistance to treatment. While there is a

growing body of work around evolutionary psychology, there is little available about the therapeutic application of this principle.

Personality Disorders (PDs) are the extreme presentation of symptoms common to many individuals who seek counselling. While distinguished by clusters categorized by descriptive similarities, ultimately individuals with a PD have difficulties with interpersonal relationships (general social functioning) and present with concerns around emotional regulation often demonstrating irritability, hostility, and fearfulness. Seeking intervention is not only about the behavior itself but the pervasiveness of behavioral patterns. It is this pervasiveness that complicates treatment. The need to protect supersedes the need to connect, and understandably these protective behaviors are persistent. Understanding, and honoring, the evolutionary function of existing behaviors would thusly facilitate achieving a liminal state.

Chapter 2

Evolutionary Theory and Personality: pre-liminal psychoeducation

Evolutionary Theory informs both the etiology of dysregulation and the methods best suited for compensating for difficulties - “understanding the mind in terms of the functions it evolved to perform also lends insight into the manner in which psychological systems can become impaired and, potentially, repaired” (Lieberman, 2007, p.196). Banding together in social groups greatly increases human survival. In order to process the vast amount of information needed to enable the communication and group coordination essential to this, our brains have developed complex capacities for language, problem-solving, and abstract abilities. Increasing pressures on these capabilities (on account of increasingly sophisticated social groups) has led to more and more nuanced specializations. Expansion in the cortex both corresponds with and supports this. Further, skills associated with prolonged and dedicated caretaking have arisen to meet the needs of this complex brain – “caretaking specialization, in turn, allowed for longer postnatal development and brains built not by genetic preprogramming but by lived experience” (Cozolini, 2010, p. 177). This creates a condition where human infants are required to learn the complexities of living in groups during their years of dependency, and this is continually shaped throughout the lifespan. Social relationships are central to our survival - we are born into relationships and our very identity is shaped by our social connectivity. Personality is the outcome of this shaping.

Evolutionary theory enhances how we view personality by factoring in not only the purpose of personality, but also the mechanisms that govern it. According

to Figueredo et al., (2009), concepts of evolutionary adaptive significance inform personality theorists about:

(a) whether there are adaptive functions for the genetic differences that influence variation in personality characteristics and what those functions are; (b) potential new aspects of mechanisms governing personality structure; (c) what aspects of an individual's developmental environment should be expected to affect the individual; (d) how and to what degree individuals should be affected by different environments; and (e) why personality traits are responsive to environmental modulation. (Figueredo et al., 2009, p. 266).

Using the above premises, personality differences are recognized as being adaptive in nature. Further, it is suggested that individual differences in personality arise from variations in strategies necessary to navigate complex social groups.

Interpreting and responding to these patterns of thoughts and behaviors becomes crucial to social success due to the "wide variety of continuously graded niches within our social, ecological and physical environments" (p.267). This diversification of traits is a response to competitive pressure for equally diverse social niches – differentiated social strategies are required in differentiated social environments. This 'niche-splitting' (fragmentation of the ecological space into more specialized niches) leads to character displacement (differentiation of individual traits). Behavioral norms evolve through species-typical optimum, and deviations from this arise from a competitive release - "the release is the relief from intraspecific competition achieved by the displacement of individual behavior from

that modal norm of response” (p.267). This results in a distribution of alternative behavioral phenotypes dependent on costs and benefits of individuals in various situation and environments.

The idea of “disordered” personality then becomes identified as a significant deviation from an optimal, culturally specific, norm. If norms are both established and understood, then looking at factors contributing to deviation helps us to understand the etiology, and function, of the behavior. These particular contexts surrounding factors are significant. Attribution to either incorrect interpretation of an environment or situation or a rigidity of response incompatible to niche-splitting (potential limited repertoire of responses) can give similar, but functionally different, behaviors. Atypical behavioral responses impact social competition and undermine an ability to attain individual goals (both proximate and ultimate), yet offers an adaptive pay-off. Potentially, the need for basic survival shadows the need for social inclusion. This challenges the idea that a personality disorder can be characterized as unchanging personality in the face of the changing environment. Instead, “personality traits represent dispositions to respond to environmental contingencies in certain ways, and to seek out environments in which prepared behaviors are suitable, but they do not represent the unalterable necessity to behave in the predisposed manner” (p. 268). This is an important distinction, and also challenges the notion of personality being fixed and untreatable. Further, it provides a contextual element in assessing disorder - “while human behavior may be constrained by individual personality traits, the cost of these constraints can be overcome by the benefits entailed in the selection of suitable social niches for the

personality traits that each individual possesses” (p. 269). The notion of adaptive plasticity, genetic diversity, and niche selection therefore become factors for making sense of behavior and has the potential to inform treatment.

In order to provide an adequate foundation for the theoretical approach of behaviors as evolutionary adaptations, it is imperative to review literature regarding the social brain. The social brain hypothesis states that features and areas of the human brain have evolved unique cognitive abilities in response to selective pressures to resolve social pressures associated with living in large complex social groups (Dunbar, 1998). The social world of humans is virtual rather than physical, requiring individuals to imagine the future world of both self and others – “these aspects of the world cannot be observed or engaged with directly, but have to be constructed in the mind” (Dunbar, 2007, p.280). Accordingly, the social brain would have had selective pressure to develop systems to accommodate this necessity.

The social brain then is conceptualized as a distributed, integrated, neural system for acquiring, processing, and deploying social information. It involves cognitive mechanisms associated with the neocortex and includes the frontal (complex language processing), parietal (integrates sensory information), occipital (primary visual cortex), and temporal (primary auditory cortex) regions. These regions, together, directly facilitate the capacity for emotional intelligence, empathy, rapport, self-awareness, and compassion. Accordingly, recent studies theorize mental disorders to be a dysregulation in the social brain (Crespi & Badcock, 2008). Thus, the thoughts and behaviors associated with disorder manifest as a result of abnormal functioning in these brain regions: where the function is language, excess

activity can result in auditory hallucinations; where the function is sense of self, dysregulation would lead to megalomania or disassociation; where the function is to promote mentalistic activates, impairment would contribute to paranoia or social delusions; where the function is social emotionality, dysregulation would present as depression or elation; the function of logical analytical skills has the potential to manifest as thought disorder; and complex regulated goal pursuit as a function, could become mania if dysregulated. These dysregulations are theoretically mediated through genetic conflicts occurring in neurodevelopment (Crespi, 2008).

Recent evidence increasingly challenges now outdated thoughts around genetic determinism. Instead, research in genomics and developmental biology support “a more dynamic, contextually contingent view of how organisms and their life cycles develop and evolve” (Honeycutt & Lickliter, 2007, p.172). This means that interactions between genes and environment (mainly human interactions) instigate reactive adaptations in response to genetic conflicts. The expression of a trait is thusly the product of epigenetics. Epigenetics refer to “the processes, whereby interaction between genetic and environmental variation lead to the emergence of patterns in phenotypic variation via development” (Crespi, 2011, p.144). Biology provides the potential, but the environment determines which potential is realized.

Epigenetic mechanisms are at the root of basic biological processes and the development of the organism. As explained in Lorea-Conde & Molero (2015), two main mechanisms of epigenetic regulation have been identified: DNA methylation and histone modification. DNA methylation refers to “adding a methyl group to the cytosine-guanine base pairs in the gene promoter group” (p.43). The consequence of

methylation is less expression of the gene (gene silencing); alternatively less methylation is generally associated with greater activation. Histones are globular proteins that support the DNA itself, together creating a nucleosome, a cluster of which make up a chromatin. Chemical interactions (acetylation, methylation, ubiquitination, or phosphorylation) are carried out by histone modifying proteins capable of altering the chromatin structure, either opening up the chromatin to transcription factors or compacting the chromatin and silencing gene activity. These modifying proteins are sensitive to environmental signals and thusly marked by environmental events. This phenomenon has considerable impact on understanding the etiology of personality disorders – “epigenetic research on behavior is accumulating growing evidence indicating the importance of gene-environment interaction in the makeup of behavioral traits” (p.44).

Evidence of this is suggested in the increased DNA methylation of neuropsychiatric genes shown to occur in borderline personality disorder. A study by Dammann et al. (2011) found that combined methylation rates were 1.7% higher in BPD patients compared to controls, and that 24 out of 27 tested genetic targets showed increased methylation levels concluding that “increased methylation may significantly lower the levels of neuropsychiatric gene products and deregulate the related pathway in BPD patients” (p. 1459). It is suggested that epigenetic processes in early life contribute to this – “it has been suggested that environmentally mediated aversive events play a major role in the development of BPD and an association between the diagnosis of BPD and psychotraumatization during childhood has been reported” (p. 1459). These adverse events promote epigenetic

alterations that increase vulnerability to critical components of the dopaminergic, glucocorticoidic, glutamatergic and serotonergic pathways as indicated by DNA methylation.

Similar findings are discussed in Lorea-Conde & Molero (2015), where subjects with a history of maltreatment (for example sexual abuse) show “greater methylation of the glucocorticoid receptor gene sponsor and that the severity of abuse has a positive correlation with the grade of gene methylation” (p.45). These effects persist into adulthood and have been shown to affect vulnerability to psychopathology. This is further evident in the link between greater methylation of the glucocorticoid receptor of suicide victims with a history of childhood abuse – suggesting the “certain suicides could be associated to childhood abuse through epigenetic mechanisms and that epigenetic marks established in childhood can last in the long term” (p.45). The epigenetic effects are vast and dependent on different patterns of methylation and histone acetylation during development.

Regarding neuronal function, the epigenetic plays an important role in cell differentiation in the neurodevelopment, in maintenance of circadian rhythms, in mediation of synaptic activity induced changes in electroconvulsive therapy of depression, in the formation of mnesic content and in synaptic plasticity. It has also been observed that the capacity for learning and formation of experiential memory is associated with rapid and transient changes of DNA methylation in the hippocampus (in the case of fear memory) and with modification of histones in the prefrontal cortex (in the case of conditional fear after extinction). (Lorea-Conde & Molero, 2015, p.43)

Epigenetics function as part of an integrated system for making sense of, navigating, and predicting individual experience. Environmental cues interact with biology in a way that serves to enable interpretation, responding, and learning with the intent of efficient and effective functioning. It is important to note that efficient and effective is not always indiscriminately ideal. However, it could be argued that the system is more function than dysfunction. Undesired, in itself, does not equate to dysfunction, rather it becomes a deviation between what “is” versus what is “ideal” – a mismatch between situation and response. The developed behavior is in line with, and appropriate for, the environment of change but perhaps not suited for explicit generalization. To understand the nature of trait development, it is informative to explore the factors that bias this system, or at times, undermine it.

A 2009 study by Richard Depue (Cornell University) presents a dimensional model of personality disturbance as defined by extreme values on interacting subsets of seven major personality traits. Depue argues that the notion of personality disorders as representing distinct categorical diagnostic entities should be rejected. Rather, “personality disturbance represents emergent phenotypes that arise from the interaction of extreme values on critical subsets of major personality traits” (p.1032). To support this, Depue’s study focused on five major traits (neuroticism, extraversion, social closeness/agreeableness, rejection sensitivity, and constraint/conscientiousness). Each trait is then framed using three major issues: (a) neurobiological variables; (b) individual variation as a function of genetic polymorphisms; and (c) epigenetic processes as effects of environmental adversity.

Since neuroticism has the strongest association with PD’s, the neurobiology

behind anxiety and stress reactivity was a focus of Depue's study. "Neuroticism is characterized by negative emotions, a heightened and persistent state of stress reactivity, and interpersonal alienation" (p.1037). Research has identified three neurobiological pathways associated with neuroticism: a genetic polymorphism in the gene that codes for the serotonin transporter (5-HTT, as indicated by altered coherence in gray matter volume and functional activity in the amygdala circuitry); the central corticotropin-releasing hormone (CRH) system (neurons that are effected by both explicit and nonexplicit stimuli associated with fear and anxiety that are located in many different subcortical brain regions that modulate emotion, memory, and central nervous system arousal); and the peripheral glucocorticoid system (activates CRH neurons in stressful conditions that ultimately secrete cortisol). All three of these systems are epigenetically shaped by adverse events in early development.

Using empirical studies and integrative reviews, Depue's study explored dopamine systems as a measure of extraversion (positive incentive motivation and reward experience) by looking at the functional properties of the midbrain ventral tegmental area. Early adversity was found to have a profound effect on dopamine functioning in response to both single intense stressors and repeated prolonged stressors. Further, "there is also an increase in the acquisition of self-administration, and a reduced threshold in terms of effective dosage of psychostimulants, alcohol, and opiates, and an increased intensity of effort (craving?) to obtain these drugs" (p.1050). Sensitization of this system, as a result of "prolonged stressors such as poor, conflictual, violent, or inconsistent familial environments or physical and/or

sexual abuse early in life” (p.1051), is significant in personality disturbance. Histrionic-impulsive behavioral features are often associated with high levels of extroversion, and “if extreme levels of extraversion reflect a sensitized DA system because of early adverse conditions, the risk for increased acquisition of addiction to even low doses of dopamine-agonist drugs (psychostimulants, alcohol, and opiates) later in life may be significantly increased” (p.1051).

Depue found that social closeness/agreeableness was the only higher order trait that showed significant within-family experience effects. Neuromodulators associated with the trait were shown to correlate with the strength of attachment, though it is well documented that attachment is affected by interpersonal experience in early development. “What is clear is that low trait levels of social closeness/agreeableness accompany neuroticism as being the strongest personality associates of a range of personality disturbances” (p.1053). Social closeness/agreeableness and social rejection sensitivity are two opposing emotional systems that regulate personal relationships – the first drawing people together, the second pulling them apart. Social rejection sensitivity is a central feature in personality disturbances, particularly in cases of borderline, dependent, and avoidant disorders.

As the fifth trait Depue included in his study, constraint represents the impulsivity modulating the expression of behavior, including emotional, motor, cognitive and sensory reactivity. “Along with neuroticism and low social closeness, constraint is well correlated with personality disturbances, particularly of the type related to unstable behavior (as in the classical unstable group of histrionic,

antisocial, and borderline PD's)" (p.1055). Constraint/conscientiousness was the only trait included in the study that was not linked to a specific motivational-emotional system. In light of this, Depue proposes that constraint modulates the probability of elicitation of all afore mentioned variables as indicated by serotonin functioning. As a significant modulator in general neurobiological function, 5-HT (serotonin receptor 5-hydroxytryptamine) acts on multiple receptor sites in most brain regions and modulates a diverse set of functions including emotion, motivation, motor, affiliation, cognition, food intake, sleep, sexual activity, and sensory reactivity. Reduced 5-HT functioning is linked to irritability and hypersensitivity to stimulation affecting motivated behavior. "Furthermore, reduced levels of 5-HT are associated with many clinical conditions, including impulsive, violent suicide, across several types of disorder, obsessive-compulsive disorder, disorders of impulse control, aggression and irritability, depression, anxiety and enhanced stress reactivity, arson, unconstrained sexual behavior, and substance abuse" (p.1055). Accordingly, Depue proposes that 5-HT constraint may provide insight into the intensity of personality disturbance over the life span.

Depue's view of personality disturbance as extreme phenotypically expressed neurobiological variables underlying emotional traits provides insight into the etiology of the impaired social functioning that causes distress in those affected. These "extreme threshold values lead to variation in the range of stimuli that are subject to negative or positive associative conditioning and to subsequent biasing of perceptual and attentional processes to stimuli that elicit a certain trait" (p.1057). Individual differences are understood as the product of an interaction

between genes and environment during times of developmental sensitivity. “Both genetic and environmental stress variables appear to be most profound and enduring when they exert their effects during early developmental periods. This may be because brain development has critical developmental windows in postnatal, childhood, and adolescent periods” (p.1057).

In this respect, Svrakic & Cloninger (2010) define personality disorders as “maladaptive syndromes developed through person-environment interaction” (p.153). Further, the authors contend that the term “personality disorder” is better replaced with “adaptation disorder”. Adaption disorder more accurately reflects the causality of the presenting problem. The distinction is important – it challenges the notion of behavior as dysfunctional. Rather, behavior is a “normal” representation of a functional system given the biology and the environment. “It is clearly less stigmatizing to convey to the patient the diagnosis of adaption disorder vs. personality disorder” (p.157) and “it is also more positive and motivating to direct treatment towards “adaptation problems” than towards “personality disorder”” (p.157).

When conceptualizing intent and reason as primary influences on behavior, any deficiencies are attributed to inherent flaws within the person. Viewing behaviors as adaptations have two main contributions to understanding disorder and potential treatment in a subtle, but poignant, shift. Firstly, behavior is now interpreted through the lens of contributing factors and seen then as a natural outcome rather than a dysfunction. We understand that brain development is responsive to the environment, and behaviors are products of past experiences.

Using this lens, counsellors can help individuals make sense of the function of their behaviors, and provides a way to objectively discern whether current experience is being appropriately served by biased/conditioned responses. Culpability can be replaced by sense-making and acceptance. Further, understanding the contributing factors behind patterns of behavior provides insight into why they persist. Change then becomes a collaborative effort, with goals that are mutually defined rather than a mandate based on diagnostic criteria. Psychoeducation based on neurobiological evidence and functional adaptation plays an integral role in helping clients to understand that they are not “broken” or “wrong”. Secondly, this view promotes hope and possibility for change. Adaptation is a lifelong process, and while not technically in a developmentally sensitive period for brain development, integrating knowledge and experience can have a profound effect on healing and ultimately creating new ways of responding. It is in this place that we find liminality.

Chapter 3:

Harnessing adaptation for post-liminal treatment of personality disorders

Once a state of liminality has been realized, behavioral modification is possible. Theories grounded in Evolutionary Psychology inform the treatment of personality disorders by offering a deeper insight into human behavior – both in terms of ultimate goals and motivations, as well as the neurobiological mechanisms that enable the adaptive processes. Epigenetic processes reveal the interactive and adaptive nature of gene expression, and as such demonstrate not only significant potential in conceptualizing the etiology of behavior but also “the knowledge of these epigenetic mechanisms may contribute to the identification of novel both psychotherapeutic and pharmacological therapeutic targets for the treatment of personality disorders” (Lorea-Conde & Molero, 2015, p.42). While epigenetic processes stabilize in adulthood, they are reversible. In fact, “social environment in adulthood can alter phenotypic features developed earlier in life through GxE interaction” (Svrakic & Cloninger, 2010, p.155). DNA methylation continues to be modifiable via influence of different environmental conditions. As such “psychotherapy should be rehabilitative, or, as it were, a human equivalent of “care” in animal models in order to be able to trigger epigenetic process and lasting, neurobiological mechanisms for behavior change” (p.155).

As previously noted, understanding the evolutionarily driven biological motivations can provide framing and context for clients to gain perspective and illuminate goals. One such treatment approach to utilize this is Cognitive Evolutionary Therapy (CET). The 2013 article *Three-week inpatient cognitive*

evolutionary therapy (CET) for patients with personality disorders: evidence of effectiveness in symptoms reduction and improved treatment adherence (Prunetti, et al., 2013) shows evidence of the effect of subtle shift in theoretical approach. The authors advocate for this approach by stating “CET integrates with attachment theory (Bowlby, 1982) findings from various models such as Dialectical Behavioral Therapy (Linehan, 1993), mentalization-based treatment (Bateman & Fonagy, 2004), metacognition-oriented treatment (Dimaggio, Semerari, Carcione, Nicolo, Procacci, 2007), Cognitive Therapy (Beck, Rush, Shaw, & Emery, 1979), and Rational Emotive Therapy (Ellis, 1987)” (p.264). Intervention is grounded in “the Darwinian view that humans are driven by hardwired and evolutionary selective set of motives and suffer because of their expectation that these goals will be chronically unmet” (Prunetti et al., 2013, p.264). CET contextualizes behaviors in social motives and “focuses on restructuring schemas of self-with-others that are developed around the quest for filling needs such as: attachment, caregiving, social ranking, sexual meeting, and cooperation” (Prunetti et al., 2013, p.264).

CET integrates and borrows many aspects of existing treatment (such as attachment theory, Dialectical Behavioural Theory, mentalization-based treatment, meta-cognition-oriented treatment, Cognitive Therapy, and Rational Emotive Therapy), the difference in the use of evolutionary theory to inform and explain –

Unlike DBT, CET pays constant attention to assessing and then promoting metacognitive awareness and differently than MBT, the focus is not only on impaired mentalizing in the context of attachment, but also on how metacognition varies according to the specific social motive active - for

example social rank involving issues of dominant some submissiveness and sexuality. (Prunetti, et al. 2013, p.264).

By using this approach, in the context of a 3-week inpatient program, researchers found an overall improvement in general psychopathology, decrease subsequent hospital admissions, and greater attendance of outpatient therapy.

While CET suggests the potential of incorporating principles of evolutionary psychology into therapeutic approaches, there may be aspects that are still overlooked. Like traditional interventions, CET focuses primarily on the reduction of negative emotions and self-harm. Patients, however, are found to not only suffer from overwhelming negative thoughts and behaviors, but also equally from an underdeveloped capacity for positive emotional responses. Learning to control negative emotions does not necessarily mean that positive emotions organically emerge. It could be questioned if those same pressures that manifested in adaptive (yet unwanted) negative emotional responses thwarted the adequate development for positive emotional responses. Arguably, this may become a skill essential to desired degrees of recovery and an important facet of treatment. Current interventions focus primarily on the reduction of negative emotions; any proposed intervention would accordingly introduce complementary skills and activities with an emphasis on strengthening the accessibility of positive emotions.

There is compelling argument for the inclusion of approaches such as Compassion Focused Therapy. Gilbert (2009), advocates that patients are found to not only suffer from overwhelming negative thoughts and behaviors, but also equally from an underdeveloped capacity for positive emotional responses. Hence,

activities such as Compassion Focused Imagery (CFI) would be essential to the therapeutic lineup, as evidence linked to compassion meditation shows that “compassion, like physical and academic skills, appears to be something that is not fixed, but rather can be enhanced with training and practice” (Mikulak, 2013). In recent research, brain alterations were noticed in as little as seven hours:

The researchers measured how much brain activity had changed from the beginning to the end of the training, and found that the people who were the most altruistic after compassion training were the ones who showed the most brain changes when viewing human suffering. They found that activity was increased in the inferior parietal cortex, a region involved in empathy and understanding others. Compassion training also increased activity in the dorsolateral prefrontal cortex and the extent to which it communicated with the nucleus accumbens, brain regions involved in emotion regulation and positive emotions. (Mikulak, 2013).

This robust effect may be attributed to how visual imagery shares cortical representations with perceptions (Cichy, Heinzle, & Haynes, 2011). It seems that the brain is unable to discern between real and imagined stimuli. This mirroring in neural activity enables imagery to have as profound effect as sensory-driven information.

A similar sentiment is advocated by Louis Cozolino (2010) in his book *The Neuroscience of Psychotherapy: Healing the Social Brain*. Cozolino points out “psychotherapists have demonstrated that many of the brain’s shortcomings can be counterbalanced by the application of skillfully applied techniques in the context of

a caring relationship” (p.305). By using the brain’s ability to attune and regulate, evolution provides a way to heal. “Because we know that relationships are capable of building and rebuilding neural structures, psychotherapy can now be understood as a neurobiological intervention” (p.305). In his chapter on the evolutionary necessity of psychotherapy, Cozolino recognizes eight problematic aspects of brain functioning that prompt individuals to seek therapy, and ways to counterbalance effects:

1. the suppression of language and predictive capacity under stress
2. divergent hemispheric processing
3. the bias toward early learning
4. the tenacity of fear
5. the damaging effects of stress hormones
6. the speed and amount of unconscious processing
7. the primacy of projection
8. unconscious self-deception

Like many of the problematic aspects, the suppression of language and predictive capacity under stress is an adaptive protective primitive reflex. During high states of arousal, speech production is inhibited to make us less likely to be heard as we prepare to respond to threat. The problem lies in the indiscriminate nature of this response to stress – our threats are not always physical or benefitted from this response. “Putting feelings into words and constructing narratives about our experiences are integral to emotional regulation, the interweaving of neural networks of emotion and cognition, and the experience of a coherent sense of self”

(p.306). When the ability to verbalize feelings is impaired, individuals are less able to build inhibitory cortical networks down to the amygdala and dissipate reactions to fear. As well, this lack of language serves to separate individuals from the healing effects of a positive connection with others. Due to sharing neural connections with Broca's area, this suppression effects moment-to-moment sensorimotor functioning in addition to language. Without a functioning sense of prediction and anticipation, traumatized individuals often experience difficulties with the day-to-day activities that are usually performed unconsciously and automatically. To facilitate healing, individuals are encouraged to create adaptive narratives about the traumatic experience in a therapeutic setting. "The therapist caring presence, availability, and skill promote a moderate sense of arousal, which supports the neuroplastic processes necessary for building to sending inhibitory fibers to limbic and brainstem centers" (p.307). Putting feelings into words minimizes the suppressive effects of trauma on language. In therapy, we stimulate Broca's area, disinhibit language, restore predictive abilities, and support neuroplastic processes of adaptive learning" (p.307).

Divergent hemispheric processing occurs when either the left (conscious, linguistic self) or right (somatic, emotional self) cerebral cortices dominates executive control of conscious processing. Evidence shows that the left hemisphere typically takes on the function of moderating states of arousal and social connectedness sometimes rejecting information coming from the right and resulting in dominance of one hemisphere or the other. This disruption of proper integration and balance between the two hemispheres can produce problematic effects. "As we

have seen, the overinhibition of the right hemisphere by the left can result in alexithymia, while an underinhibition can result in over emotionality, magical thinking, or auditory hallucinations” (p.308). Mood regulation is dependent on integration and balance of the left and right prefrontal cortices. “When trauma occurs in early development, the hemispheres grow to be less coordinated and integrated, resulting in problems in affective regulation and positive social awareness” (p.308). In addition to having a smaller corpus collosum, individuals with histories of childhood abuse and neglect also have fewer connecting fibers leading to decreased lateral integration. “As we have also seen, the left and right prefrontal cortices are biased toward positive and negative emotions, and a disturbance of the homeostatic balance of the two can result in extremes of depression and mania” (p.308). Therapists seek balances in hemispheric processing by drawing out the conscious and unconscious realities of both hemispheres by encouraged overintellectualized clients to become aware of and explore their feelings, and alternatively to provide tools to build cognitive skills in clients presenting with an overwhelmed by experience with anxiety, fear, or depression.

Most consistent with understanding the role of early experience in personality disturbance is the bias toward early learning. “Early experiences shape structures in ways that have lifelong impact on three of our most vital areas of learning: attachment, emotional regulation, and self-esteem” (p.309). Children who experience abuse and neglect during developmental periods often enter adolescence and adulthood with symptoms such as explosive anger, eating disorders, drug and alcohol problems, identity disturbances, poor self-image, and antisocial behaviors –

“the brains of these children become shaped to survive the combat of their day-to-day lives, but are ill-equipped to navigate peace” (p.309). It’s important that psychotherapy utilizes tools to explore early experience. Making the unconscious conscious can facilitate sense-making and integration of experience to promote the reintegration of dissociated neural networks of affect, cognition, abstract thinking, and bodily awareness resulting in decreased shame and increasing self-compassion.

The tenacity of fear makes behavior and thinking more rigid. “Although the amygdala begrudgingly comes to share executive control with the prefrontal cortex, it remains capable of hijacking the brain in states of distress and fear” (p.310). Evolution has shaped a brain that errs on the side of caution, and as such is prone to generalize experiences and signs of danger. This can result in resistance to taking risks and learning new things and a tendency to resist change. “Once our brains have been shaped by fear to perceive, think, and act in stereotyped ways, we tend to remain in rigid patterns that are reinforced by our very survival” (p.310). This can impair openness and trust even in loving relationships. Therapists contend with this by creating therapeutic safety with warmth, empathic caring, and positive regard. “Within the consulting room, therapists attempt to be amygdala whisperers and work to reactivate networks of new learning in the hippocampus and prefrontal cortex” (p.311). Individuals overcome fear not by erasing traumatic memories, but rather by building new connections that serve to inhibit triggering autonomic arousal.

The damaging effects of stress hormones are well documented. Stress itself is adaptive, however overexposure to the stress hormone cortisol can have

debilitating effects. The evolution of a large cortex enables memory and predictive capacities, however this also creates the ability to imagine endless possibilities and anticipatory anxiety that is difficult to distinguish from reality. This contributes to trigger and release of cortisol during stressful situations. One of the actions of cortisol is regulate energy dedicated to protein synthesis. “Because neural growth and our immune system depend on protein synthesis, prolonged high levels of stress hormones impair our ability both to learn and to remain healthy” (p.312). Compromises to brain maintenance, learning and immunological functioning make psychotherapeutic interventions to regulate stress a key therapeutic target independent of diagnosis.

Due to our expanded cortexes, much of how we process information relies on the speed and amount of unconscious processing.

While it takes approximately 500-600 milliseconds for an experience to register in unconscious awareness, the amygdala can react to a potential threat in less than 50 milliseconds. This means that by the time we have become consciously aware of an experience, it has already been processed many times in our more primitive neural networks, activating memories and triggering implicit memories organized by past learning. This unconscious backdrop shapes the perception of what is being consciously attended to and constructs our experience of the present moment. (pp. 312-313).

This is important to consider since we are relying on an assumption of free will when traditional therapeutic approaches focus on merely altering negative thoughts and behaviors. “Ninety percent of the input to the cerebral cortex comes from

internal processing” (p.313). It is this rapid and reflexive response grounded in past learning that perpetuates cognitive distortions and has the potential to keep individuals frightened, withdrawn, and confused. This is also why triggering memories of adverse events has such a profound effect on current functioning. Fostering an ability to question one’s self-defeating (or even incorrect) assumptions is a key predictor of positive outcome in psychotherapy. “We attempt to get them to question their thoughts, beliefs, and assumptions and to “act in,” that is, to come to sessions and talk about their impulses with the hope of integrating inhibitory cortical input with primitive memories, emotions, and urges” (p.313).

Mirror neurons enable us to live in complex social networks by allowing us to learn by watching others, anticipate/predict the actions of others, and relate to others with emotional resonance and empathy. Possessing the neural circuits to generate theory of mind can also complicate brain functioning with the primacy of projection. We are quick to think that we know the motivations and intentions of others. “Unfortunately, evolution has not seen fit to invest much neural circuitry into self-awareness. Projection is automatic and lessens anxiety while self-awareness requires effort and generates anxiety - which do you think is going to be the norm?” (p.3140). Identity can then get confusing as it emerges from interweaving automatic theories of others with understanding of ourselves. “This may also be why self-analysis is generally not successful because the logic of self-inquiry is so interwoven with our implicit assumptions” (p.315). Therapeutic processes promote questioning of judgments and assumptions made in personal histories and invites inquiry into thoughts of others that may in fact be autobiographical.

What is becoming clear is that self-insight has not exerted as much pressure on natural selection. “In fact, it may have been selected against because real self-knowledge creates the risk of doubt, hesitation, and demoralization” (p.315). Defenses against this lead to unconscious self-deception in an effort to decrease anxiety, shame, and depression. “Secure attachment and ego strength are correlated with our ability to hear feedback, except our own limitations, and use less reality distorting defenses – humor and set of repression and sublimation instead of denial” (p.316). When this is lacking, attributional biases distort reality and can have negative social consequences. In therapy, interpretations, clarifications, and reflections offer an opportunity to challenge biases and create alternative perspectives.

The role of adverse experiences in early development is a consistent factor in personality disturbances, yet many of the existing therapeutic approaches do not specifically target the effects of trauma. In her book *Childhood Disrupted: How Your Biography Becomes Your Biology, and How You Can Heal*, Donna Jackson Nakazawa (2015) includes an inventory of questions related to Adverse Childhood Experiences (ACE) exploring topics around abuse, neglect, and household dysfunction. “Adverse Childhood Experiences change the architecture of our brains and the health of our immune system’s, they trigger and sustain inflammation in both body and brain, and the influence our overall physical health and longevity long into adulthood” (p.10). The adversity, abuse, and/or neglect do not have to be overt nor severe to have profound effects – deep, biophysical changes occur even with “mild” adversity such as living with a depressed parent or recurrent humiliation. According to Nakazawa,

healing from ACE begins with recognizing resilience (bringing into attention exceptions and protective factors) and facilitating sense making through activities such as mindfulness and therapeutic writing; psychotherapy; and strategies grounded in trauma work.

Healing developmental trauma has a profound effect on self-regulation, self-image, and capacity for connectedness with others – all therapeutic targets for the treatment of personality disorders. Heller & LaPierre (2012) propose the NeuroAffective Relational Model as an approach for healing developmental trauma. “The goal of the NeuroAffective Relational Model (NARM) is to work with these dysregulations, disruptions, and distortions will never losing sight of supporting the development of healthy capacity for connection and aliveness” (p.1). The model addresses core needs (connection, attunement, trust, autonomy, and love-sexuality) while taking into account adaptive survival styles and core difficulties. The authors intent is to acknowledge the past while working in the present to focus on clients’ strengths, resources, and resiliency to promote integration through experience. Personality disruptions are mediated through an interaction between biology and environment, and as such it is intuitive that healing would encompass the same.

Chapter 4: Discussion

The social brain has evolved to create and navigate social connection, and it is impairments in the ability to connect that are at the root of distress in those who suffer with personality disorders. Interdependence is essential to survival, but the same neurobiological systems that construct also have the potential to undermine it.

We are indeed born for love. But at birth, we are not yet fully loving. Infants' brains are the most malleable - and vulnerable - that they will ever be outside the womb. The gifts of our biology are a potential, not a guarantee. As with so many other human potentials present at birth, empathy and love require specific experiences to develop. Just as Mozart could never have become a musical genius if his father haven't provided lessons and instruments - and Michael Jordan would not have become the suburban athlete he has been without access to hoops, balls, and courts - babies don't learn to care and connect without specific early experiences. Changes in the timing, nature, and pattern of these experiences will influence how relational capabilities emerge in an individual. These changes even help determine which of our genes will be activated and which will never reveal their potential - for good or for ill. (Szalavitz & Perry, 2010, pp.5-6).

We are wired to connect - perhaps that is why an inability to causes such significant distress and impairment - but we are also wired to protect. Both are critical to survival, yet each, in their extreme phenotypical expression, compromises the effects of the other. These two seemingly competing systems exist as genetic potentials and it is environment and experience that prompts which gains

dominance as expressed in personality.

This changes how we view personality disorders. Svrakic & Cloninger (2010) argue for the term “adaption disorder”, and while I agree that this is a much more fitting term, the term “disorder” still does not seem to fit. Disorder suggests incorrectness, in that the function itself is dysregulated. As discussed in previous chapters, given the biology and environment the system has functioned exactly as it should. Rather, it is now apparent that it is the product of this process that has resulted in a way of being that interferes with personal goals. The “dysfunction” lies in the unrealized potential of underdeveloped competencies for positive thoughts and behavior. It is not a crisis of disrepair; it is a call for balance.

If distress is linked to the extreme presentation of traits (Depue, 2009), then the therapeutic goal of treatment is logically to create balance. Current approaches to treatment focus on changing negative thoughts and behaviors, but those negative thoughts and behaviors persist due to a deficiency in compensatory ones. It makes sense that results are unsustainable with this approach. Introducing ways to interrupt the primacy, or even validity, of unwanted behaviors is an undeniable advantage, but suppression is difficult to sustain giving the pressures of living. Alternatively, building capacity and proficiency in compensatory thoughts and behaviors provides more options for attuned response.

There is a saying that goes “if all you have is a hammer, all problems start looking like nails”. This seems fitting to the experience of living with a personality disorder. The only traits and skills that have an opportunity to develop are those that serves to protect - as reinforced by mere survival. Developing other skills, ones

that broaden the range of response, improve ability to more appropriately navigate experience. There is no reason to throw out the hammer – it is still an important and valuable tool, but one would be less apt to use it to cut a board if in the other hand you held a saw.

The brain's ability to alter itself via neuroplasticity holds the promise for sustainable change. In his book *Mindsight: the new science of personal transformation* (2010), Daniel Siegal claims that “one of the key practical lessons of modern neuroscience is that the power to direct our attention has within it the power to shape our brain's firing patterns, as well as the power to shape the architecture of the brain itself” (p.39). Experience activates neurons and the release of chemical neurotransmitters, leading to the strengthening of synaptic connections particularly under conditions of repetition, emotional arousal, novelty, and the careful focus of attention. “When neurons fire together, the genes in their nuclei – the master control centers – become activated and “express” themselves” (p.42) and “careful focus of attention amplifies neuroplasticity by stimulation the release of neurochemicals that enhance the structural growth of synaptic linkages among the activated neurons” (p.42). Focusing attention in specific ways has the ability to “create neural firing patterns that permit previously separate areas to become linked and integrated” (p.43). This fuller, more integrated, brain becomes a more integrated and adaptive mind.

The profound effect experience has on eliciting sustainable neurobiological change, calls into question the psychopharmacuetical interventions commonly used in the treatment of personality disorders (generally to contend with anxiety and

depression). It calls into question the potential detriments of bypassing a system that's use is to react and respond to environmental cues. Taking into account the ideas previously explored, the introduction of any artificial regulation of neurochemicals into an adaptive system seems a slippery slope, and causes us to legitimately questions whether psychopharmacueticals impair an ability to adapt.

Robert Whitaker, in his book *Anatomy of an Epidemic: magic bullets, psychiatric drugs, and the astonishing rise of mental illness in America* (2010), explores how the overprescribed use of psychopharmacueticals is not only ineffective in many cases, but can create long term detriments - often worsening function. Whitaker illuminates a significant concern with traditional thinking with interpreting disorder as a dysregulation in the brain –

The “broken brain” story helps with customer retention, of course, for if a person suffers a “chemical imbalance”, that makes sense that he or she will have to take the medication to correct it indefinitely, like “insulin for diabetes”. But more important, the drugs *create* chemical imbalance in the brain, and this helps turn a first time customer into a long-term user, and often into a buyer of multiple drugs. The patient’s brain adapts to the first drug, and that makes it difficult to go off the medication. (Whitaker, 2010, pp.319-320).

This seems like something that could be avoided if practitioners worked with the adaptive system rather than against it. Given emerging evidence in neurobiology and adaptive processes, the use of these drugs may be hindering an ability to heal. At minimum there is reason to be cautious.

Current conceptualizations have the potential to do more harm than good. Not only in the approach to treatment, but also in the very way we interpret the issue itself. There is little contention that childhood trauma, verbal abuse, high reactivity, and attachments contribute to personality disorders, yet consequential thoughts and behaviors are still labeled as “abnormal” and “inaccurate” based on “skewed perceptions”. This is extremely invalidating and insinuates that brokenness is at the root of suffering contributing to an individual’s sense of self-blame for their experience. This invalidation may in fact be underlying the need to act out. In this regard, dismissing (or even a lack of acknowledging) early trauma perpetuates the disorder and undermines any attempts at recovery.

Chapter 5: Implications for practice and research

Based on these theoretical assumptions, a model of treatment begins to emerge. Two distinct stages guide the counsellor through a process of sustainable change:

- Pre-liminal Processing (reconciliation of the past)
- Post-liminal Skill-Building (creation of a new future)

In order to illustrate how this approach may be applied in clinical practice, following is a generalized treatment protocol.

After ensuring personal safety and ruling out imminent intent to harm, pre-liminal approaches begin with the exploration of individual experience – including current situation and influential factors during development. The events themselves, perceived relevance, and the meaning extrapolated. The counselor would also bring awareness to acts of resilience and highlight people who have acted as allies. The goal would be to gain a better understanding of both responses to adversity as well as protective factors. Further, the pre-liminal stage would include trauma work to integrate and reconcile experience and bring into awareness patterns that have consequentially become part of being. With the use of psychoeducation the client would gain understanding into evolutionarily adaptive drives, the biological processes of personality development, and the potential of neuroplasticity.

The outcomes of the pre-liminal stage would be increased objectivity, reduced self-blame, greater self-awareness, and illuminated hope. The intent would

be to loosen the hold of negative thoughts and patterns and gain a better understanding of the client's goals for wellbeing. By framing existing patterns of behavior as methods of coping (reinforced through mere survival), the client and counsellor can identify underdeveloped strategies for interpersonal connection. Treatment is thusly understood as creating balance between protective skills and connective skills, as opposed to traditional approaches that attempt to correct flawed thinking. The message to the client is that they are not broken – quite the opposite! Given their biology and experience they have developed appropriately and that to achieve their goals it is possible to effectively expand their behavioral skill set.

The pre-liminal stage is a reconciliation of the past. The client would be given an opportunity to be heard and validated. In the context of a safe, non-judgmental, and attuned therapeutic relationship they could explore how they had made sense of the adversity in their life. Individualized experience would then be framed using context grounded in evolutionary drives and neurobiological development (psychoeducation). Using techniques for counselling trauma - such as Heller and LaPierre's NARM, mentioned previously – the client would begin the processes of healing from any developmental trauma. Along with the counsellor, the individual would then co-create a plan for balancing behavioral skill sets that would underlie the changes they would like to make. The pre-liminal stage is essential for gathering information, facilitating sense making, and defining client-driven goals.

Once a liminal state had been achieved, the counsellor would move towards strengthening a capacity for positive behavioral and thought patterns. In this post-

liminal stage, many of the existing approaches for the treatment of personality disorders would be applicable to regulate negative responses. In addition, the counsellor would use techniques to add skills such as compassion, establishing boundaries, and increasing proficiency with trust and connection. While existing practices are undeniably applicable, they are employed with the intention of creating new neurobiological pathways. This focus not only promotes patience with the process, but is also more forgiving of perceived setbacks – altering pathways takes time and repetition.

Further research into this approach would be able to inform best practices and solidify a comprehensive model of treatment. Intuitively, I would hypothesize that inpatient treatment would be effective during pre-liminal stages (possibly in 7,14, and 21 day programs based on pervasiveness of presentation), followed by outpatient post-liminal skill building and maintenance. Also, investigation into delivery methods (one-on-one, group, self-directed, or a combination of methods) would be able to assess efficiency and cost effectiveness. Measures should include reduced intent for harm (hospitalizations), increased interpersonal skills, program adherence, and alignment of goals with outcomes.

Chapter 6: Conclusion

30 years of clinical work and research around personality disorders has failed to yield neither a solid conceptual understanding of dysfunction nor an effective treatment (Svrakic & Cloninger, 2010). This level of stagnation reveals a fundamental flaw in both attitudes and intervention around personality disorders. My personal philosophy is that there are many paths to suffering, however the social context and neurobiological contributions are often not weighted appropriately in traditional approaches to mental health. My hope is that this thesis illuminates the need to consider the etiology (as a combination of biology, environment, and subjective experience) of the disorder in determining appropriate and relevant treatment. Understanding behavior as an evolutionarily driven adaptation impacts not only the efficiency and efficacy of treatment, but also in altering individual attitudes and experiences with stigma, self-concept, and resistance to change.

Interpreting behavior as an evolutionarily driven adaptation informs all stages of the therapeutic process in the treatment of personality disorders – from pre-liminal readiness to change, creating a sense of liminality, and in post-liminal change. Ultimately, framing personality as an adaptation challenges ideas around dysfunction. By replacing outdated ideas of being “broken” with an understanding of how traits develop, and accordingly how it is possible to heal, clients can invite the possibility of creating a new way of being. This view reduces association with culpability, defense, and shame instead pointing to the isolation of behavioral deficiencies and methods to increase range of function. Further, treatment is seen as less punitive and more restorative as therapeutic goals change as well. While

decreasing distress or impairment remains the primary focus, also taken into account are ways to heal from potential trauma in addition to balancing competencies to promote appropriate response and social navigation.

I feel that concepts discussed in this thesis have the potential to transcend limitations to personality disorders. Often clients present with a sense of frustration and hopelessness associated with persistent patterns of behavior in their lives – non-clinical versions of how we typically define personality disorders. The ideas are universal to general therapeutic practices and mental health.

This sentiment is echoed in the premise of “Tricky Brains” (Gilbert, 2009) where conflicts between evolved brain functions, and evolutionary goals, are non-explicitly implicated in the development of disorders. The main message from this instructional piece is that is that “it’s not your fault” (Gilbert, 2009, p.46).

The first is the fact that we all find ourselves in this life - we sort of wake-up and here we are. None of us chose to be here at this time, nor did we choose the genes that made our brains, nor did we choose to have a brain that is capable of feeling the powerful emotions that it does, nor did we choose to have a family of the type that we had. So, a lot of what happens to us and what goes on in our minds is not our fault. However, this does not mean that there’s nothing we can do. Indeed, there may be many physical conditions that we can get such as diabetes or high blood pressure or even flu, which may not be our fault, but we then can learn how to deal them and reduce risks to our health. We take responsibility but without blaming. (Gilbert, 2009, p. 2)

It is from this place that we welcome a liminal state and embrace change – not because things are wrong or broken, rather it is because the possibility of improved functioning, and increased capacity for connection, is attainable.

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