

COMPREHENSIVE NEUROFEEDBACK TRAINING IN THE CONTEXT OF
PSYCHOTHERAPY FOR TRANSFORMATIONAL CHANGE

BY

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ABSTRACT

This qualitative, practice based study explores individuals' processes of change through the lived experience of a comprehensive approach to Neurofeedback Training (NFT) received in the context of psychotherapy. The specific focus of this research examines the reported effects clients attributed to Neurofeedback Training during the course of the training and beyond. The NFT system operates through an applied nonlinear dynamical systems approach, representing a paradigm shift of significant advance beyond the operant conditioning models. User friendly and client guided, the system's operation requires no pre-assessment or diagnostic protocols. This approach to NFT and psychotherapy presents a unique and unexamined process of change based on our human ability to self-organize and self-regulate provided needed information. Some leading historical, theoretical and philosophical antecedent idea strands contributing to the development of nonlinear dynamical systems and its application to psychotherapy and NFT receive coverage.

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PREFACE

I first heard Val Brown speak at the Biofeedback Society of Washington in November, 2003. He was presenting on a comprehensive approach to neurofeedback training, he and his wife, Susan Cheshire Brown had developed based on nonlinear dynamical systems applications. I felt like a foreigner who had found her way home. I felt I had met a kindred spirit. For the first time, I met someone who not only understood my orientation, but shared my goals. Together, the Drs. Brown achieved something I thought possible but not probable for my lifetime. I chose this topic in appreciation of that achievement.

My qualitative, practice based study was undertaken to explore individuals' perceived processes of change through the lived experience of a comprehensive approach to Neurofeedback Training received in the context of psychotherapy. As a psychotherapist and neurofeedback practitioner, I brought experience and insight to this project; assets that could have biased my judgment regarding my research design and findings interpretations. However, I have been told that I can take a dispassionate and critical view toward that which I love most. I believe I have addressed and taken recognized procedural steps to insure the trustworthiness of this project.

I give thanks daily for the love and life changing influence of my husband, John, and my daughters, Trinity and Caitlin. Without them, I do not believe I would have been able to transform into the being I am, the continuing to transform "I am," I feel joy "in being." I remain grateful to my mother for

unconditional love, freely given. I remain grateful to my father for his conditional love and for the conditions for which he bears responsibility. I thank Jim Moore for friendship, support and encouragement over the years.

I thank Maria Montessori, Arnold Gesell, Jean Piaget, Albert Einstein, Marie Curie, Joel Chandler Harris, Alfred Korzybski, Antoine de Saint-Exupery, Jean-Paul Sartre, Abraham Maslow, Erik Erikson, Carl Jung, Alfred Adler, Anna Freud and many others who kept my focus to the complex and holistic, guiding and influencing me through their visions and experiences.

I acknowledge and express deep appreciation to Susan and Valdeane Brown, Alan Bachers and Stephen Daniel, without whose direct influence, this project could not have occurred. I owe much to my friend, Mary Fortman, for keeping me laughing and for all her help and encouragement. I thank my clients who allow me the privilege of sharing in their lives. I acknowledge that this bit of writing, my personal expression and addition to the body of knowledge, comes out of my experience and interpretation. That others may find something of value, something to influence or inform them, remains my hope and goal.

July 5, 2010

Chapter 1: Introduction

Context and Background

People seek psychotherapy for help through a process of change, usually for a specific reason, need, purpose or goal. Some people seek psychotherapy for issues defined within the pages of the numerous evolving editions of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000) and have clearly formulated defined outcome descriptions, such as “no more panic attacks.” Desired goals, outcomes and results can also have vague aims, such as wanting to “feel better,” or to “figure out what’s wrong with me.” Sometimes people face events and circumstances for which they have no experience or that feel overwhelming and unmanageable. Situations arise where people need help understanding patterns of thinking-feeling-behaving, feel a need to gain awareness of options and to create new modes of thinking-feeling-behaving. Patterns of thinking-feeling-behaving developed as coping strategies earlier in life may come to interfere with attainment of hopes, plans and goals as those strategies become counter-productive and obstructive. People seek psychotherapy to improve or change aspects of their thinking-feeling-behaving in order to experience an increased sense of well-being leading to a more optimal functionality and improved quality of life. Since beginning to use neurofeedback training (NFT) in conjunction to psychotherapy within my practice in early 2004,

I have noticed that neurofeedback training seems to facilitate wide-ranging effects of change beyond clients' presenting issues and the therapeutic relationship. These changes seem to represent more rapid and global transformation beyond previously considered and hoped for outcomes from talk therapy. This research explores clients' experience of NFT received in the context of psychotherapy.

Psychotherapy defined

State licensure defines my role, the scope of practice and the limitations of my profession as a mental health counselor. The State of Washington, USA, defines *mental health counseling* as meaning:

“the application of principles of human development, learning theory, psychotherapy, group dynamics, and etiology of mental illness and dysfunctional behavior to individuals, couples, families, groups, and organizations, for the purpose of treatment of mental disorders and promoting optimal mental health and functionality. Mental health counseling also includes, but is not limited to, the assessment, diagnosis, and treatment of mental and emotional disorders, as well as the application of a wellness model of mental health.” (Chapter 18.225.010 Definitions: section (8) RCW, 2004)

I appreciate the breadth of this definition. It acknowledges a need for a diverse knowledge base, of learning and application of principles from multiple disciplines and knowledge areas, especially human development, which considers humans holistically, as complex, transforming systems as, and interacting within environments. It includes a breadth of services purposely focused toward “promoting optimal mental health and functionality” and “application of a wellness model...”

Norcross defines *psychotherapy* as:

“Psychotherapy is the informed and intentional application of clinical methods and interpersonal stances derived from established psychological principles for the purpose of *assisting* people to modify their behaviors, cognitions, emotions and/or other personal characteristics *in directions that the participants deem desirable*” (emphasis mine) (Norcross, 1990, p. 218; Prochaska & Norcross, 2007, p. 4).

This definition, broad, generic and neutral by the authors’ own statements (Norcross, 1990; Prochaska & Norcross, 2007), promotes change occurring, in the context of psychotherapy, through intentional interpersonal relationship with “informed and intentional application of clinical methods.” In this definition, there is no mention of mental disorder, diagnosis or treatment, though perhaps, it seems strongly implied by the “application of clinical methods.” There exists no mention of specific theoretical orientation, therapeutic stance, or specific techniques and methodologies. Thus, that change occurs complexly, multi-dimensionally and through many varied processes has acknowledgement. The defined intention seems to state the psychotherapist serves the client by facilitating processes of self-identified and self-desired change.

Statement of the Problem

Despite the existence of over 400 approaches, techniques and systems of psychotherapy, (Mahoney, 1991; Prochaska, Norcross & DiClemente, 1994; Prochaska & Norcross, 2010), continuing need exists for development of effective processes to help people move beyond the presenting issue(s) and to develop their ability to negotiate life’s vicissitudes optimally. Human beings live as emergent, interactive, interdependent systems, thinking-feeling-behaving organisms within

environments. Life, as an emergent process, includes change occurring as a constant process of living. Within applied behavioral health, methods ought to enable, enhance and promote a person's natural strengths and abilities to cope with the inevitable ups and downs of daily living with resilience and flexibility. Optimal functioning and improved quality of life creates choice and allows emergence of self actualization and optimized development of human potential.

Problem Background

Currently, western approaches to applied behavioral health continue to operate within and move increasingly toward reductionist, linear, cause and effect paradigms. These paradigms include psychotherapeutic research, practice and psychopharmacology. Since the 1990's increasing efforts focus on evidence-based practices using "objective," methodology and defined causal models (Denzin & Lincoln, 2005; Norcross, Beutler, & Levant, 2006; Hellerstein, 2008) have resulted in therapy manuals for interventions of specific disorders. Many approaches do not allow or acknowledge the complexity of human beings interacting within multiple environments or for the variables of human behavior and interaction.

Therapy Manuals and Techniques

Therapy manuals and psychotherapeutic techniques, such as Mind over Mood (Greenberger & Padesky, 1995), Skills Training Manual for Treating Borderline Personality Disorder (Linehan, 1993), Dialectical Behavior Therapy Skills Workbook (McKay, Wood & Brantley, 2007), Modular Cognitive-Behavioral Therapy for Childhood Anxiety Disorders (Chorpita, 2006), and

Learning ACT: An Acceptance & Commitment Therapy Skills-Training Manual for Therapists (Luoma, Hayes & Walser, 2007), often present standardized, prescriptive approaches to particular disorders for cognitive and behavioral change. Mainly addressing symptoms, but not problematic sources, the individual and his circumstances can seem ignored or discounted. The concept of behavioral predictability remains a dominate idea within the science of psychology, but human behavior remains random, erratic, irregular and highly variable. Reliance on using step manuals and prescribed techniques can hamper the therapists' ability to be present for their client and impair the interpersonal relationship. Thus said, many therapists, clients and those seeking self-help find these resources useful and helpful (www.amazon.com. sales rankings & customer reviews).

Efficacy studies related to techniques and methods in therapeutic practice often originate in controlled settings with funded research. Evidence of efficacy in actual practice settings may be difficult to prove (Hellerstein, 2008), due to structured ideas about research holding that replicating human behavior can occur and that human events and behaviors, studied in isolation, can be understood. The resulting recommendations to practitioners may require unavailable resources and can be difficult to implement (Hellerstein, 2008).

Psychopharmacology

Psychopharmacology, widely used to treat mental health problems, provides an allopathic approach to psycho-physiology, based on a linear, cause and effect assumption. Use of psychotropic medication has become epidemic and of concern (Morris & Stone, 2009; Zito, et al, 2008; Milligan, 2008; Block, et al,

2004). The assumption that “mental disorders,” caused by neurochemical imbalances, should receive treatment through neurochemical agents ignores the complexity of a human level system interacting with environments (Chamberlain & Bütz, 1998). Medications treat chemically and by design aim to decrease symptoms by altering brain and central nervous system (CNS) neuro-chemistry, usually temporarily. Many, such as Zyprexa, Lamictal, and Abilify have unknown or unestablished mechanisms of action (Physicians’ Desk Reference Nurse’s Drug Handbook, 2010, pp. 4, 538, 1189.) When the person stops taking the medication, the problem returns and/or discontinuing the medication may incur other problems. Many adverse side effects of medications exist (PDR, 2010), and for many people the side effects outweigh the benefits. Detrimental and sometimes permanent side effects can and do occur (PDR, 2010). Toxic qualities, addictive potential and drug interactions present further risks. A recent study found 106,000 deaths a year due to non-error, adverse effects of FDA approved, correctly prescribed medications (Starfield, 2000). Some consider the increase in unintentional deaths epidemic (Stetka, 2010). The long-term effects of the majority of psycho-pharmaceuticals on developing brains and central nervous systems (CNS), as well as those that are mature, remain unknown and inadequately researched. Concern about the wisdom, safety and rapidly increasing use and reliance on psycho-pharmaceuticals receives greater attention. Not without merits in some particular circumstances, methods such as these may actually impede human adaptability by ignoring human and societal complexity (Chamberlain & Bütz, 1998).

Trends in Research

Trends in research reflect the ethics, values and mores of political, economic, cultural and academic stakeholders' influence on which avenues of research receive support (Robbins, 2000; Miller & Crabtree, 2005; Crane, 2007). Methods respected in other countries and cultures, and innovative ideas can threaten the status-quo of dominant cultural biases. Many applied theoretical approaches in use await formal research and research funding. The pioneers of research among both practitioners and clients, represent people searching for solutions to problems without acceptable answers, willing to "try it and see if it works," unwilling and unable to wait for validation and accepted proof of efficacy by the mainstream academic and scientific community. Alternative and less conventional applied theoretical approaches, sometimes supported by anecdotal evidence for many years, rich in empirical data, remain considered unproven. Accepted research may follow discovery and empirical evidence by twenty years or more (Doman, 1974) or may not come into existence. And, although largely unaccepted by practitioners operating within the mainstream of the medical and behavioral health fields, these alternative approaches attract a following. When helpful, the use of these approaches develops and expands by word-of-mouth. Research studies of public trends indicate wide spread growing interest and investment in alternative approaches to well-being and health that include those called alternative, naturopathic, homeopathic, holistic, complementary, functional and integrative (Barnes, et al, 2007; Barnes, et al, 2004; Eisenberg, et al., 1998).

Recently, formalized practice-based research has begun to receive supportive attention within the medical establishment in the United States (Hellerstein, 2008). Practice-based research has a long history of use intuitively, informally and formally among practitioners of the healing arts. As practitioners, we read, study and incorporate new information, different methods and techniques into practice with our clients, testing their success. This type of practice-based research mostly serves to improve the practitioner within his personal practice in his interactions with his clients serving a restrictive purpose. The significant differences of formalized practice-based research relate to the practitioner who seeks to add to the body of knowledge, gaining that knowledge “partly by the means of practice and the outcomes of that practice” (Candy, 2006, p. 3). Candy, (2006), further makes the distinction that “practice-led research is concerned with the nature of the practice and leads to new knowledge that has operational significance for that practice,” to advance knowledge about or within practice (Candy, 2006, p.3).

Practice-based research occurs predominantly within the disciplines of health, education, and in the applied arts. While in use since the middle 19th century, it remains more common in United Kingdom educational and health settings. Terms and definitions vary among the disciplines. In the U.S. Public Health field practice-based evidence and research recognizes the phenomenology of an individual’s health (referring to the person’s perceived experience of health) having dependence upon the interaction of the biological, familial, social and environmental aspects. The research paradigm intends that it should provide

information for the development of theory and that it should improve practice and policy (Potter, Quill, et al, 2006).

Neurofeedback Training (NFT)

Advances in the neurosciences and technology are opening doors to understanding our human-ness as never before. Neurofeedback Training, a process that allows a person to change their brainwave patterns, acts as a safe, non-toxic and non-invasive means to symptom diminishment of many clearly defined health problems by tapping into the self-organizing, self-regulating capacities of the brain and CNS. Despite its fifty year history and the fact that its efficacy has been well established in over 1,000 studies since the early 1970's (Hammond, 2009; Yucha & Montgomery, 2004/2008; Duffy, 2000), it still carries labels casting it as controversial, experimental and unproven within mainstream academic and behavioral health arenas. Within the field of psychophysiology, an interdisciplinary construct, forms of biofeedback training, including neurofeedback training, have greater acceptance as effective means of achieving increased self-regulation. Neurofeedback Training, called brainwave biofeedback, EEG biofeedback, neuro-biofeedback and more recently, neurotherapy, has a long, well documented history of research, applications and use. A specialized form of biofeedback training, neurofeedback training specifically teaches control over the electro-chemical processes of the brain and central nervous system. NFT allows the "brain" to "see" itself at work and correct dysfunctional or overly 'ordered' brainwave patterns that may contribute to manifestation of diagnosable "disorders," and other issues described as

interfering with living life as desired. The process of NFT creates opportunity for optimal self-regulating brainwave activity by providing the brain and CNS information about its functioning through an auditory and/or visual feedback loop.

People from many different disciplines and professions have become involved in the use of NFT. Today, (2010), while Neurofeedback Training remains outside the mainstream, it may be close to reaching its “tipping point” (Gladwell, 2000) due to increasing, ongoing periodic exposure on television, radio, the world-wide web, and in printed publications.

An endorsement for the use of NFT in clinical practice appeared in an article published by the American Psychological Association (Masterpasqua & Healey, 2003). Academic and textbook publications about NFT, such as Psychophysiology, (Andreassi, 2000); Biofeedback, (Schwartz & Andrasik, 2003); Introduction to Quantitative EEG and Neurofeedback, (Evans & Abarbanel, 1999); Handbook of Neurofeedback: Dynamics and Clinical Applications, (Evans, et al, 2006); Getting Started with Neurofeedback, (Demos, 2004); and The Neurofeedback Book, (Thompson & Thompson, 2003); have increased, indicating its emergence as an accepted and recognized field of academic and professional pursuit.

In popular print, the following books have been published about NFT in the last 10 years: A Symphony in the Brain, (Robbins, 2000/2008); Getting Rid of Ritalin, (Hill & Castro, 2002); Healing Young Brains: The Neurofeedback Solution (Hill & Castro, 2009); Mindfitness Training: Neurofeedback and the Process, (Crane & Soutar, 2000); The Healing Power of Neurofeedback, (Larsen,

2006); Biofeedback for the Brain, (Swingle, 2010); Neurofeedback: Transforming Your Life with Brain Biofeedback, (Albright, 2010); and LENS: The Low Energy Neurofeedback System, (Hammond, 2007).

Zengar Institute NeuroCARE/NeuroOptimal (ZIN)

Ten years ago, Zengar Institute introduced a neurofeedback system based on non-linear dynamical systems, a best fit model for what we currently understand about human systems. The NeuroCARE (Comprehensive Adaptive Re-normalization of EEG) NFT approach, continually evolves as a NFT system, through the work of its developers, Valdeane W. Brown, Ph.D. and Susan Cheshire Brown, Ph.D. Currently known as NeuroOptimal, its revolutionary trans-disciplinary approach to self-regulation provides a new neurofeedback training option for use in education, behavioral health, sports training, and at home to promote optimal human performance. The Drs. Brown continually research and develop its next advancement to enhance and upgrade the system, usually ahead of and in anticipation of the rapidly accelerating advances in technology. Formal research of its application has just begun.

NeuroCARE/NeuroOptimal (ZIN) acts as a comprehensive EEG biofeedback training system. Designed incorporating non-linear dynamical operations, it represents a new paradigm within the neurofeedback field, permitting training to occur through a model more attuned to our natural neurological functioning as we understand it at this time. This constitutes a dramatic departure from traditional learning theory and the operant conditioning

model. Throughout this paper “ZIN” will symbolize the Zengar Institute NeuroCARE/NeuroOptimal approach to NFT represented throughout the study.

Purpose of the Study

This qualitative study was designed to explore and describe clients’ experience of Zengar NeuroCARE/Zengar NeuroOptimal (ZIN) Neurofeedback Training (NFT) received in the context of psychotherapy. The research explores client descriptions of the effects they attributed to ZIN neurofeedback training in order to understand the meaning of the experience across the course of training and within the context of their lives. A need exists to learn how the client or neurofeedback trainee experiences the training. A need exists to learn more about how clients’ perceive processes of transformation. A need exists to understand how clients perceive the effects of NFT to impact the broader contexts of living.

Research Approach

A practice-based study, this research used a qualitative approach known as an embedded multiple case study design (Yin, 2009; Stake,2006) to investigate clients’ experience of neurofeedback training received in the context of psychotherapy. Following Husserl’s instruction to get back to the experience (Gallagher & Zahavi, 2008) the study examines clients’ verbatim responses taken from case notes. It tried to discover and understand processes of change and transformation that may occur resulting from the specific use of ZIN NFT, a diagnostically agnostic, comprehensive training approach. The research provides descriptive, interpretive and theoretical language exploring a “how” question

through the use of documents and interviews. The study will provide foundational knowledge about client response to receiving NFT and its use in a psychotherapeutic setting.

Rationale and Significance

Masterpasqua & Healey, (2003) proposed the efficacy of psychotherapeutic practice may be enhanced by helping clients learn self-regulation through NFT. NFT has extensive validation of its effective use to resolve multiple inhibiting issues afflicting humans (Hammond, 2009; Duffy, 2000). While NFT practitioners report remarkable, often times miraculous results regularly through the various online forums, few studies have explored the clients experience directly (Aguilar-Prinsloo & Lyle, 2010). Incorporating the use of ZIN neurofeedback training into the psychotherapeutic setting may create opportunity for increased operational and functional flexibility and resilience within the brain and central nervous system (CNS), and extensionally to the whole person. ZIN operates as a user friendly, non-intrusive, client-centered and client-guided training process. ZIN NFT may change the interactions (perceiving-reacting-thinking-feeling and responding) of humans as organisms-as-a-whole-interacting-within-environments through space-time. Using ZIN NFT within a psychotherapeutic setting provides clients space-time for processing their changing as perceived and interpreted-expressed through behavioural and verbal levels. Due to its comprehensive training approach, ZIN NFT may create personal change that not only takes care of the “presenting issue” but may also enable a

person to experience greater ease in living, an ability to live their life functioning more optimally.

Initial studies of new approaches often begin with case studies. These initial studies can provide vital information that can guide further studies. However, very few studies exist within the neurofeedback literature that address the participants' point of view. The exploration of phenomenological experience, the self described experience of the trainee, will provide a depth of understanding about processes involved that do not exist. Significant to this study is that the main body of data was taken from closed files of clients eliminating any "in a study" artifact (Anderson & Strupp, 1996). The clients' identified issues represent typical presenting issues in a generalized private practice. A thorough exploration of the lived experience of people who have received ZIN in the context of psychotherapy may provide knowledge about what differences occurred in the experiences of the participants and reveal insights into perceived processes of change and transformation that can occur beyond the presenting issues. This study begins to provide formal validity for anecdotal reports of the experiences of participants accumulating from practitioners using ZIN in widely divergent settings and contexts. This study constitutes the first formal academic research of self described experiences of some participants of ZIN NFT.

Chapter 2: Literature Review

Introduction

The conceptual framework of this research rests within the ideas of nonlinear dynamical systems (NDS) which include concepts of chaos and complexity. Braiding together the theoretical and philosophical bases I try to demonstrate how the use of ZIN NFT, within the context of psychotherapy or possibly within any setting, creates opportunity for improved functionality of the brain and CNS (and extensionally to the organism-as-a-whole interacting within environments) by enhancing our naturally occurring self-organizing and self-regulating capacity. Human change processes in psychotherapy consider change originating in separate realms of affect, cognition, and behavior (Prochaska & Norcross, 2010; Mahoney, 1991). These realms are fused and can not, do not function separately. The conceptual model of nonlinear dynamical systems (NDS) has application with regard to how we view our human-ness and how we understand change as a process.

This chapter begins with a summary comparison of linear and nonlinear processes as formulated by the late Alfred Korzybski under the name of non-aristotelian systems (1958). Then I present discussion of the complexity of humankind through von Bertalanffy's (1947/1968) General Systems Theory and Boulding's (1956) hierarchy of increasingly complex systems models. These

philosophical and theoretical foundational understandings permit a more accurate perception of a human systems model. These explanations enable perception of human-ness as an increasingly complex, constantly transforming emergent organism-as-a-whole interdependent upon and interacting with environments across space-time. These understandings also highlight the limitations of applying reductionist and linear models to gain further knowledge and understanding of what it means to live as human. The NDS applications to this study concerning psychology, perception and expression, change at the silent levels and the psychotherapeutic bases of change are covered. Discussion of NFT as a field leads into discussion of the development of ZIN systems. The chapter concludes with the literature review of studies leading to this one. Justification and literature review in relation to the research approach has been included in the following chapter on methodology.

Korzybski

Alfred Korzybski (1879-1950), a Polish Count, mathematician, philosopher and engineer settled in the United States in the 1920's. His influences include Georg Cantor, A.S. Eddington, Werner Heisenberg, Charles Darwin, Albert Einstein, H. A. Lorenz, Poincare, Freud, C. S. Sherrington, Max Planck, Leibnitz, Bertrand Russell, A. N. Whitehead and Wittgenstein among others (Korzybski, 1958). Korzybski (1921/1974; 1958/1980) proposed a new science of man based in an "extensional" discipline, defined as aiming at embracing the scope and magnitude of current (circa 1948) knowledge of our empirical reality, formulated to train us to use our human neuro-linguistic

capacities optimally. First published in 1933, Korzybski's treatise Science and Sanity has gone through four editions between 1933 and 1958 and six printings, the latest in 1980. He called the new science non-aristotelian systems and General Semantics. His goal seemed aimed toward embracing the knowledge base (circa 1933-1948) of the natural sciences including physics and mathematics, and the humanities to assist the much needed paradigm shift in our human orientation. Korzybski credits Newton and Leibnitz with formulation of a general theory leading to future developments in mathematics. Through the evolution of the language of mathematics, the creation of differential and integral calculus enabled the study of change that more closely matched empirical reality. Applying the non-aristotelian systems perspective to thought and language, Korzybski created the discipline he named "General Semantics," which promotes systems of neuro-linguistic imaging and re-visioning, including conceptual and evaluative processes, and language usage that more adequately describe and reflect empirical facts of life we know and experience.

Non-aristotelian Systems: Another Name for Nonlinear Dynamical Systems

Today, our language uses terms including systems, networks, webs, complexity, chaos, non-dualistic, and nonlinear dynamical systems to help us to more easily understand and embrace what Korzybski termed a non-aristotelian systems orientation. The non-aristotelian orientation, better understood today as the nonlinear dynamical systems (NDS) approach represents an interdisciplinary approach to the scientific study our world and of our humanity, embracing non-dualistic systems-models that recognize process and change as ongoing and

constant. Non-dualistic systems-models acknowledge the complex nature of our world and humanity, and the impossibility of attributing simple, singular causative A to B results. And because scientific knowledge accumulates through human endeavor, its attainment and truth comes through a subjective filter and can hardly carry an “objective” label.

The non-aristotelian systems orientation provided a vitally needed broadened integrative perspective perhaps never before envisioned and presented. Through the innovative ideas of scientists and philosophers who influenced Korzybski and those, who he, in turn, influenced, we can trace some strands of the intellectual lineage that continue to promote, if not a holistic point of view, a more inclusive, extensional and expansive orientation toward human possibility and a richer understanding of human potential and “the grand scheme.” Korzybski did not receive much lasting recognition from the within the mainstream of academia proper. However, his writing and work directly influenced Abraham Maslow, Fritz Perls, Albert Ellis, Gregory Bateson, Paul Watzlawick, Stephen Wolinsky and the development of Neuro-linguistic Programming (Kendig, 1990; Maslow, 1979; Caro & Read, 2003; Harris, 1998). Kurt Lewin and Korzybski seem to have influenced each other (Lewin, 1935; Kendig, 1990).

The field of Developmental Psychology emerged out of a humanist, non-aristotelian, or nonlinear dynamical systems orientation in the work of developmental psychologists including Witmer, Baldwin, Gesell, Ilg, Ames, Bowlby, Werner, Vygotsky and Piaget. However, their classifications of linear, step-wise progressions of stages of development were a limitation. The study of

human development across the lifespan exists within a non-aristotelian, nonlinear dynamical systems orientation. Within the field of psychology, Phenomenologic, Gestalt (Goldstein, 1963), Humanistic, Transpersonal, Rational Emotive Behavioral Therapy, Narrative, Constructive, Chaos and Complexity and Quantum psychological orientations and applications operate as non-aristotelian, nonlinear dynamical systems constructs.

Korzybski developed the table presented below, as he said, to “roughly” reflect the differences between Aristotelian orientations and “new” General Semantic non-aristotelian orientations (circa 1941). I offer it here as it provides an excellent snapshot summary of the cross-disciplinary ideas Korzybski promoted. It provides an aid in understanding the thinking and ideas drawn upon from the late 19th century and throughout the 20th century that have led to what we identify today as Nonlinear Dynamical Systems, including Complexity and Chaos theories gaining influence and expanding our knowledge base.

Nearly seventy years later, we find our perceiving-reacting-thinking-feeling, responding and expressing still largely dominated by antiquated reductive, cause and effect orientations that distort and confuse our being-in-our-world, our perceiving-processing-understanding-thinking and our adaptation and accommodation to living and our world.

It is important to emphasize here that all has come before, what has been used or done before is not wrong or to be rejected, or that does it has no further use. The notion of *time-binding* acknowledges our uniquely human ability to retain the whole body of knowledge and further progress, building upon the past,

inventing, creating, and advancing at ever increasing complexity through space-time. Please note the dates of the following quotes.

“In general semantics, in building up a non-aristotelian system, the aims of Aristotle are preserved yet scientific methods are brought up to date.”
(Introduction to the Second Edition, *Science and Sanity*, Korzybski, 1941/1958, pp. xl)

“At the moment, the major thrust of scientific endeavor is reductive, i.e., aimed at understanding the parts that make up, constitute, an experience. This approach to our experiences has produced the fruits of technological expertise and has made our physical world ever so much more comfortable than it was a few centuries ago... For a century the reductive mode has been regnant: particles not fields, probabilistic statistics not topologies have been the descriptive “paradigms” taught our students. But over the waning years of the century a return of interest in holistic issues has begun to emerge. I say return, because toward the latter part of the 19th century scientific thought was much less compartmentalized. Compartmentalization comes from an over-reliance on the reductive approach. Today there are stirrings, especially in quantum physics and cognitive science that bode well for such a renewal of science in a holistic and wholesome *modus operandi*.” (New Horizons in the Sciences, Pribram, 1999).

Table 2:1 A Non-aristotelian Revision

The following table is quoted in its entirety as presented from Introduction to the Second Edition (1941), *Science and Sanity*, Korzybski, 1958, pp. xl-xlii.) *The parenthetical inclusions were added by me.

(Think Linear)* Old Aristotelian Orientations (circa 350 B.C.)	(Think NonLinear Dynamical Systems)* New General Semantic Non-Aristotelian Orientations (circa 1941A.C.)
1. Subject-predicate methods	Relational methods
2. Symmetrical relations, inadequate for proper <i>evaluation</i>	Asymmetrical relations, indispensable for proper <i>evaluation</i>
3. <i>Static</i> , ‘ <i>objective</i> ’, ‘permanent’ ‘substance’, solid matter’, etc., orientations	<i>Dynamic</i> , ever-changing, etc, electronic <i>process</i> orientations
4. ‘Properties’ of ‘substance’, ‘attributes’ ‘qualities’ of ‘matter’, etc.	Relative invariance of function, dynamic structure, etc.
5. Two-valued, ‘either-or’, inflexible, dogmatic orientations	Infinite-valued flexibility, degree orientations

Aristotelian Orientations	Non-Aristotelian Orientations
6. Static, finalistic ‘ <i>allness</i> ’; finite number of characteristics attitudes	Dynamic <i>non-allness</i> ; infinite number of characteristics attitudes
7. <i>By definition</i> ‘absolute sameness in “all” respects’ (‘identity’)	<i>Empirical</i> non-identity, a natural law as universal as gravitation
8. Two-valued ‘certainty’, etc.	Infinite-valued maximum probability
9. Static absolutism	Dynamic relativism
10. <i>By definition</i> ‘absolute emptiness’, ‘absolute space’, etc.	<i>Empirical</i> fullness of electro-magnetic, gravitational, etc., fields
11. <i>By definition</i> ‘absolute time’	<i>Empirical</i> space-time
12. <i>By definition</i> ‘absolute simultaneity’	<i>Empirical</i> relative simultaneity
13. Additive (‘and’), linear	Functional, non-linear
14. (3+1)-dimensional ‘space’ and ‘time’	4-dimensional space-time
15. Euclidean system	Non-euclidean systems
16. Newtonian system	Einsteinian or non-newtonian systems
17. ‘Sense’ data predominant	Inferential data as fundamental new factors
18. Macroscopic and microscopic levels	<i>Sub-microscopic</i> levels
19. Methods of magic(self-deception)	Elimination of self-deception
20. Fibers, neurons, etc., ‘objective’ orientations	Electro-colloidal process orientations
21. Eventual ‘organism-as-a-whole’, disregarding environmental factors	Organism-as-a-whole- <i>in-environments</i> , introducing new unavoidable factors
22. Elementalistic <i>structure</i> of language and orientations	Non-elementalistic <i>structure</i> of language and orientations
23. ‘Emotion’ and ‘intellect’, etc.	Semantic reactions
24. ‘Body’ and ‘mind’, etc.	Psychosomatic integration
25. Tendency to split ‘personality’	Integrating ‘personality’
26. Handicapping nervous integration	Producing automatically thalamo-cortical integration
27. Intentional <i>structure</i> of language and orientations, perpetuating:	Extensional <i>structure</i> of language and orientations, producing:
28. Identifications in value: a) of electronic, electro-colloidal, etc., stages of processes with the silent, non-verbal, ‘objective’ levels b) of individuals, situations, etc. c) of orders of abstractions	Consciousness of abstracting Extensional devices (a-c)
29. Pathologically reversed order of evaluation	Natural order of evaluation
30. Conducive to neuro-semantic tension	Producing neuro-semantic relaxation
31. Injurious psychosomatic effects	Beneficial psychosomatic effects
32. Influencing toward un-sanity	Influencing toward sanity
33. ‘Action at a distance’, metaphysical false-to-fact orientations	‘Action by contact’, neuro-physiological scientific orientations

<u>Aristotelian Orientations</u>	<u>Non-Aristotelian Orientations</u>
34. Two-valued causality, and so consequent ‘final causation’	Infinite-valued causality, where the ‘final causation’ hypothesis is not needed
35. Mathematics derived from ‘logic’ with resulting verbal paradoxes	‘Logic’ derived from mathematics, eliminating verbal paradoxes
36. Avoiding empirical paradoxes	Facing empirical paradoxes
37. Adjusting empirical facts to verbal patterns	Adjusting verbal patterns to empirical facts
38. Primitive static ‘science’ (religions)	Modern dynamic ‘religions’ (science)
39. Anthropomorphic	Non-anthropomorphic
40. <i>Non-similarity of structure</i> between Language and facts	<i>Similarity of structure</i> between language and facts
41. Improper evaluations, resulting in:	Proper evaluations, tested by:
42. <i>Disregarded</i>	Maximum predictability
43. <i>Disregarded</i>	Undefined terms
44. <i>Disregarded</i>	Self-reflexiveness of language
45. <i>Disregarded</i>	Multiordinal mechanisms and terms
46. <i>Disregarded</i>	Over/under defined character of terms
47. <i>Disregarded</i>	Inferential <i>terms as terms</i>
48. <i>Disregarded</i>	Neuro-linguistic environments considered as environments
49. <i>Disregarded</i>	Neuro-semantic environments considered as environment
50. <i>Disregarded</i>	Decisive, automatic effect of the <i>structure of language</i> on types of evaluation and so, neuro-semantic reactions
51. Elementalistic, verbal, in tensional ‘meaning’, or worse still ‘meaning of meaning’	Non-elementalistic, extensional, by fact <i>evaluations</i>
52. Antiquated	Modern, 1941 *(& progressing-2010)

General Systems Theory

Kenneth Boulding, influenced by Korzybski, created a description of a nine level hierarchy of complexity of systems reflecting upon General Systems Theory as a skeletal approach to expanding scientific theory and knowledge (Boulding, 1956, 1956/2007; von Bertalanffy, 1968). J. Samuel Bois (1973) expanded upon these ideas nearly twenty years later further urging the incorporation of this hierarchy into our conceptual “mental” systems-models to

increase our awareness and sensitivity to human complexity. Richardson and Goldstein (2007) urge complexity scholars to remember and embrace all that general systems theory has to offer to the potential applications of complexity theory to our world.

These systems-models resonate because we “can know more than we can tell” (Polanyi, 1964; 1984) and in providing articulation of tacit knowledge, we raise our consciousness. By increasing our awareness and freeing us from limitations of restrictive imaging, we open ourselves to unlimited possibility and potential. We have the capability to hold these conceptual-images of complexity within our awareness. The differences are not additive, linear differences of degree. They represent increasing complexity of multi-dimensional, multi-ordinal, systemical and non-linear dynamical properties of operations.

“Additive thinking, where *more* and *plus* have a linear meaning and where they fail to suggest a transformation of the constitutive elements of the emergent whole, pervades most of our built-in unconscious; it often exerts a harmful influence on our semantic reactions.” (Bois, 1973, p.103)

Systems Model 1

Systems model 1— This “static structural” or “framework” model represents a system-model of elemental form, inanimate, non-changing, classificatory, categorical and hierarchical, one consistent with our language system. This system-model operates at the descriptive level, where we come to understand the relationship of parts to the whole without reference to the function of the whole. Accurate descriptive models create the foundation for our body of knowledge. One of the issues at this level concern our imaging of things as non-

changing when we know that every thing no matter how solid and permanent it appears, continues in process.

Difficulties then arise in English when the using the verb “to be” in a predicative expression of a property or relation to the subject or as the “is” of identity. For example, in the statement, “The grass is green,” ‘green’ describes a quality of some grasses; grass and green-ness do not share meaning; we classify grass as a plant and green as a color. “We see this grass as the color green” or “This grass appears green colored” makes a more correct statement (Korzybski, 1950). In the statement “I am hungry,” ‘hungry’ describes a state experienced by ‘I;’ “hungry” and “I” do not constitute synonyms. In the French language, a person would say, “J’ai faim” which literally translates as “I have hunger,” again, an expression closer to the psycho-physiological phenomenon of experiencing hunger. Use of the verb “to be” as “identity” meaning “sameness in all that constitutes the objective reality of a thing” (Mish, 1994, p. 575), particularly, in statements such as, “1 plus 1 is 2.” rather than “1 plus 1 equals 2,” creates mistaken conceptualizing, evaluating, and mistakes of categorizing and abstraction. It seems a good portion of the work of psychotherapy and neurofeedback training address neuro-linguistic patterns of static identification. Some languages do not have the verb “to be” (Carroll, 1956; Bois, 1973), creating important considerations concerning some qualities of differences in processing, imaging and perceptual formulation of lived experience in other cultures.

Bourland (1974, 1989) created E-Prime, the use of Standard English with the verb “to be” eliminated in all forms. Albert Ellis re-wrote and re-issued *A*

Guide to Rational Living (Ellis & Harper, 1975) and other of his works using E-Prime, providing elegant examples of how recognizing processing in our use of languaging promotes less “stinking thinking.”

Systems Model 2

Systems model 2—A “clockwork” structure represents a mechanistic model of interdependent parts working together but dependent on an outside energy source. This structure supports linear, cause/effect, action/reaction, stimulus/response and reductionist type reasoning/thinking. *Use of this mental model has supported the majority of research and invention by human endeavor to this day.* The classic statement of Newton’s third law within the field of physics: “For every action there is an opposite and equal reaction,” operates within this system-model. In behavioral science, operant conditioning and B.F. Skinner’s behaviorism fit into this model.

Systems Model 3

Systems model 3—Boulding gave this system-model the nickname “thermostat,” as representative of a mechanistic model that utilizes a feedback control or loop. Feedback, or information, conveyed and interpreted and acted upon provides the signature characteristic. Cybernetic systems (Wiener, 1948/1961) and the homeostasis model fit into this system-model. For example, the temperature gauge on the thermostat for the furnace is set for 70 degrees. The sensor registers the temperature as, for example, 65 degrees, and sends this information as a message to the furnace to begin producing heat. The sensor

continues to measure the *difference* of the *variation* from the designated setting. Thus when it “reads” and “interprets” the temperature as 73 degrees, it sends this *feedback* information to the furnace to stop producing heat. Bois named this corresponding mental model the self-regulating structure. This model introduces the notion of circular causality.

When simplistically applied to the human condition in the physiological realm, we can relate to experiencing tiredness, going to sleep and awakening rested (hopefully), or, experiencing hunger, eating and stopping when satiated, (again, hopefully). The danger herein concerns the oversimplification. Tiredness or lack of sleep affects the whole organism in multiple ways in multiple systems levels. The other danger lays in the application of the construct of homeostasis to humans when discussing self-regulation. This is discussed further in the section on NDS.

We use language comparing CNS and brain functioning to that of the computer perhaps because computers seem capable of doing so much. However, computers are machines and much less complex than humans, even though able to do some complex operations with much more speed than humanly possible. Still, it operates as a tool.

“The closer the mental model is to the empirical system of which it is the analog, the more realistic the thinking. A model that is much more simple than the phenomenon it is intended to illustrate shrinks out thinking to the models dimensions and causes us to miss the complexity of the phenomenon.” (Bois)

The following introduce living systems models. Here we can begin to formulate mental models more in keeping with our lived reality.

Systems Model 4

Systems model 4—This open system-model describes the first of the living models, called the “cell,” or “self-reproducing” level of complexity. Using the life-cycle of a “cell” as a model, parts of the cell interact and are interdependent. The parts of the cell cannot continue to exist without each other, nor without input from the environment in which it exists. Cells exist as open systems, meaning cells will selectively obtain input, food or energy, from the environment. Behavior changes via the “through-put” process of ingestion, excretion and metabolic exchange (Boulding, 1956/2007). At this level, space-time becomes a dimension of existence, though not a “known” dimension: cells mature, re-produce, multiply and/or die. The notions of constant changing and processing exist as characteristic.

“They bring to a higher level of potentiality the energy they absorb. They have a definite within, an autonomous functioning inside the membrane that separates them from and at the same time relates them to the milieu in which they exist” (Bois, 1973, p.148).

Systems Model 5

Systems model 5—This system-model carries the names of “plant” or “self-expanding.” This level represents the complexity of botanical processes produced through the interaction of genotype and environments to create phenotype. Here exist patterns of genetically determined, interdependent, differentiated cell growth from a seed into a mature seed-bearing plant. Growth occurs in location, a ‘stationary’ environment, as the cellular systems differentiate between “parts,” roots, stem, leaves, etc., multi-dimensionally, through space-time. Imaging the growth of a flower or a tree from seed to maturity in our

mind's eye, as perhaps seen through viewing a time-lapsed film helps us to incorporate this system-model into our consciousness.

Systems Model 6

Systems model 6—This level of complexity, represented by the “animal” or “self-moving” designation incorporates all previously mentioned systems and adds the capacities of mobility, sensory reception from the physical senses and processing via the brain and central nervous system. Much of behavior results from genetically transmitted instincts, however, at this level, the ability to learn: the ability to receive, process, store, modify and act upon accumulated knowledge has inclusion. Within this system-model awareness of self and others comes into existence. However, environmental adaptability seems limited by genetic endowment.

Systems Model 7

Systems model 7— This level represents the “human” and “self-reflexive” living system-model incorporating ideas of increasing complexity unique to humanity, the highest known form of life known to us at this time. “Self-reflexive” refers to the human ability to “know and know that he knows” (Boulding, 1956/1975, p.25). Humans have capacity for symbolic representation: written language and speech. Humanity strives to understand, recording and tracking our journey through space-time, creating a history: an ever-expanding and accelerating knowledge library. I intend inclusion of the whole body of knowledge: arts, sciences, technologies and speculations, through ongoing imagining, creativity and invention (time-binding). We interact within and have

the capacity to change environments. We contemplate our finiteness of lifespan (time-bound) upon earth and its meaning. Our ability to receive, process, store, modify and adapt information seems almost limitless.

“He abstracts relations among items of experience (objects) and establishes relations among them that are other than those offered by unaided nature (waterfall to power plants, economic and political units, etc). He expresses these relations whether discovered or invented in symbols and this web becomes the texture of the world in which he lives. He is autonomous to a high degree and conscious of his autonomy. He is capable of changing his environment, including other forms of life and energy to suit his purposes his ambitions or his passing fancy. Man is capable of self-observation, self-criticism and self-management. He may be conditioned, but he is capable of overcoming conditionings that were self imposed or induced from the outside.” (Bois, 1973, p. 155).

“Chaos theory is rich in symbolism and metaphor. Perhaps this is true of chaos more so than other scientific paradigms because science is finally looking at the human level of experience, where language and story are important tools in communicating.” (Chamberlain, 1998; p. 6)

Systems Model 8

Systems model 8 — This level symbolizes the “social organization” of humanity where all the complexity of human roles within society become the empirical reality. Within this model we observe and participate as individuals interacting in groups, cooperating, mutually interdependent, learning, and communicating, developing societies and cultures and adapting to environments. This level of complexity includes values, ethics and mores, though sometimes contradictory, and all other aspects pertaining to social organization and cultural expression within societies. We can hold conscious awareness of our multi-layered and multi-dimensional interactive roles within family, friends, work, community, cultural group, nation and world networks. And if we did, perhaps

we could find universal values, ethics and mores that would lead to peaceful evolution and advancement and not lead to our ultimate destruction.

Systems Model 9

Systems model 9 – This last level, identified as the “transcendental” systems-model acknowledges systemical structures and relationships that may and probably do exist, but as yet remain less explored and less ‘know-able.’ This level acknowledges the spiritual, energetic and other intangibles and as yet unexplored possibilities.

“Perhaps one of the most valuable uses of the above scheme is to prevent us from accepting as final a level of theoretical analysis which is below the level of the empirical world we are investigating. Because, in a sense, each level incorporates all those below it, much valuable information and insights can be obtained by applying low-level systems to high-level subject matter. Thus most of the theoretical schemes of the social sciences are still at level (ii), just rising now to (iii), although the subject matter clearly involves level (viii).” (Boulding, 1956/2007, p.149).

Understanding and holding awareness that we, as humans, live within and operate as systems models of complexity at levels 7, 8 and 9, while trying to explain and understand ourselves using much less complex models contributes to distortion, simplification and limited conceptualization and understanding of human conditions and our world.

Nonlinear Dynamical Systems

Korzybski’s work had a strong influence in some quarters but his work fell into relative obscurity after his death in 1950. “General Semantics” experienced a slight revival during the 1960 -1970’s as the Humanistic, Gestalt, Phenomenologic and Family Systems schools of psychology gained prominence

(Maslow, 1954, 1971; Rogers, 1954, 1961; Watzlawick et al., 1967; Bois, 1966; Satir, 1972; Bateson, 1972, 1979). Innovative universities embraced interdisciplinary studies and some people thought a major scientific revolution (Kuhn, 1962/1970) was occurring with the application of systems theory (Laszlo, 1996) and ideas of nonlinear dynamical systems being applied outside of mathematics and physics. Although a slight dip in publications occurred in the early 1990's, publication of scientific papers pertaining to nonlinear dynamical systems have increased exponentially (Scott, 2007). The language of NDS has entered popular media and theoretical applications in the science of man have increased, as seen in psychology and the neurosciences. It seems application of NDS concepts receive mis-application by some, at times, as they are imposed upon old frameworks, upon aspects or specific systems within human systems that cannot operate or be understood or studied in isolation from the other interdependent aspects. The NDS concepts seem natural and more easily grasped by upcoming generations because they have been born into their expression and because these models create a more accurate empirical fit.

The concepts of NDS consistent with the study include: Humans live as NDS organisms-as-a-whole interacting with environments across space-time. Change occurs. Change occurs constantly and at varying rates. How it manifests cannot be precisely predicted. Change will not occur in a necessarily step-wise or stage manner. Life across space-time occurs emergently. Change may or may not be attributed to an external influence. Change can occur by chance and external influence. Change may be attributed to some functional relationship. Some

seemingly insignificant influence may create a large effect. Similar events may impact individuals quite differently. Multiple variables, possibly, probably untraceable may create a synergetic self-re-organization of increased complexity. As we live through space-time we become increasingly complex. Processes of emergent life cannot reverse – we cannot get younger. Even as illness goes away, the person has not “returned” to a previously healthy state, but has emerged into a new healthy state not the same. Each moment exists as unique for each person, but shared patterns and themes may emerge (Robertson & Combs, 1995; Chamberlain & Bütz, 1998; Piers, et al, 2007; Guastello, et al., 2009). Self-organizing and self-regulating rely upon naturally occurring oscillations and chaos within our human systems within systems within environments to maintain resilience and flexibility. Homeostasis may represent dis-ease within the human body and a “stuck-ness” inhibiting complex adaptability (Giardino, et al., 2000).

Further NDS Perspective Applied to Human-ness: Perception and Expression

The way we use words and conceptualizations to describe ourselves, our activities, and our knowledge do not reflect or represent adequately currently known or accepted empirical reality. In fact, we cannot separate mind and body and spirit, we exist as mind-body-spirit, an electro-chemical living organism interacting with and interdependent upon environments. We cannot separate mind-brain, only with our language can we separate these symbolic word ideas and in doing so we distort and confuse ourselves and others. Pribram (1999) distinguishes mind as an emergent process of brain and CNS, not a thing. We

cannot separate emotion from body-mind except through the symbolic abstraction of words. As humans we exist as the most complex living organism known to us, a particular manifestation of energy. We call ourselves human. We exist as complex, non-linear dynamical systems: cells with sub-parts, electro-chemical in nature, forming our central nervous system and brain, systems within systems, cerebral-spinal fluid, blood, bones, muscles and organs, growing and changing by the nano-second as we move through space-time. These multi-dimensional and multi-ordinal layers of multiple cooperative systems interact creating our unique human-ness and in extension, our culture and civilization.

“Many of our present reactions have been programmed into our system by the habits we have acquired in the past; they are oriented by what we expect or want our future to be. Man is a space-time living totality that reacts with everything he has been, is, and anticipates being.” (Bois, 1973, p. 22)

Life exists as an emergent process characterized by change and transformation. Everyday and every moment, we are changing. From the moment of conception to the day we die, we are in a continuous state of change. This reflects Korzybski's (1933) original organism-as-a-whole interacting with environments, human, as a time-binding processor. This constant state of change occurs emergently and holistically, occurring within the mind-body-spirit while interacting with environments, moving through time-space. The passing days and years are marked by the rituals of birthdays, other holidays, significant events and rights of passage. Some people make marks on the doorway trim, tracking the height of the children as they grow through the years. Pictures and other media create story and record change as living occurs. The passages are recorded within

our mind-body-memory, through imaging and neuro-linguistic processes. We recognize that in being human, at any one moment a person is a sensing-thinking-feeling-sensing, self-moving, electro-chemical, meaning-maker operating within, and interacting within environments and time-bound by past and future. Imagine a time-lapsing experience of yourself from the moment of conception to the present in which you have full psycho-physiological awareness of the complete complexity of your human-ness. You, moment to moment, day to day, you in name but in process (being), ever in motion, experiencing, growing, developing, transforming, becoming through time-space, and can ‘see’ the effects of genetics and the affect of environmental interactions. You: 0/0: moment of conception, 1yr/1mo.1day.1:45pm sitting in a highchair at table in your house with Mom and you say “mama”....You: 5yr/1mo.3days.8:45am going to your first day of school...You: 7 yrs., 10 yrs., ...You: at this moment.

Why make this emphasis? I think we communicate poorly, without adequate language to describe the ‘facts’ which represent fully a lived subjective reality. Language is rich, but words are merely symbolic, a map, an inadequate representation of fact(s) on an abstract plane. Korzybski said not only:

1). “the map is not the territory” Non-identity exists between the word and/or picture: the symbolic representation does not share identity with the thing; but also that:

2). A map does *not* represent *all* of a territory: Non-allness, recognizing that the symbolic cannot capture the complete lived experience or capture all the characteristics of the phenomena or event.

3) A map is *self-reflexive*, in the sense that an ‘ideal’ map would include the map of the map, indefinitely. We are capable of examining the relationship between the map and the territory; we can think about our thinking, use language and symbol to examine/evaluate/abstract language. The importance of the non-aristotelian premises lay in the fact that they apply the relation of language and symbol to non-verbal levels, from the event through processes of abstraction to the meanings and descriptions we abstract, examine-evaluate using language to describe language.

These concepts are important to the reasoning base of a qualitative phenomenological research because perception occurs at a silent level, “what can be shown, cannot be said” (Wittgenstein, 1961, p. 31), and to describe an experience represents a level of abstraction, and yet another to interpret and give meaning. It is a goal of this research to try to remain as close to the experience of the participants as possible and to report the meaning of the experience for the participants as accurately as possible. It is important to understand and keep in consciousness more fully, more consciously; the complexities of what being human entails and recognize the levels of abstraction we use in communication.

Perception and Silent levels

Korzybski (1951) describes orders of abstraction processing humans experience before putting language and meaning to phenomena. The act of abstraction means to consider phenomena in terms of its general qualities or characteristics apart from concrete realities, specific objects or actual instances. He proposes three silent, non-verbal, unspeakable processes of abstraction occur

before we give language or verbal expression to any given event, whether occurring within internal or external environments.

Silent Level I

First-order experiences begin with the event or happening, what's happening now. The phenomena or event stands alone before response or meaning becomes given. Our amazing human body receives many ongoing messages from both internal and external environments. Many events monitored and processed within us occur without any conscious notice. We selectively attend, filtering out that which does not need our conscious attention. The emergent reality of our ongoing living experience begins with the event or happening, the object, the phenomena. This Korzybski calls silent level I.

Silent Level II

Transitioning to level II, we experience an immediate, neuro-somatic or physio-electro-chemical nervous system *impact* of the object, happening, event, phenomena, as a non-verbal, unspeakable process. This, Korzybski calls silent level II. This process occurs with the sum total of our being, our *human* totality of accumulated past with present state, within space-time at that moment.

Silent Level III

The neuro-somatic impact then triggers a process of reaction: our neuro-somatic-semantic, psycho-physiological, electro-chemical *response* coming to consciousness: “thinking about,” “thoughts,” “feelings” and/or “feeling.” This process also occurs with the sum totality of our being, our accumulated past, our

present state, *presence* and anticipated future across space-time. This Korzybski calls the silent level III. To experience these non-verbal unspeakable processes in an immediate way, Korzybski suggests pinching oneself.

‘What finds its reflection in language, language cannot represent. What expresses itself in language, we cannot express by means of language.’
(Wittgenstein, 1974/2001, 4.121, p. 31)

Verbal Levels

At this point, we transition from silent level III to the verbal levels where we can give linguistic expression to *selected aspects* of our non-verbal silent levels responses. When we verbalize, we choose how we talk about “it” and that expression may change over space-time or may depend on the environments in which we find ourselves interacting.

Understanding the abstraction processes occurring above brings clarity to Korzybski’s most famous quote, “the map is not the territory.” Silent level I represents the “territory.” We can also call the “territory” the “objective” phenomena. The “map” represents our verbal expression of what we choose to abstract and describe from the “territory,” after we have processed through silent levels II and III. Through language, we use words to create a “map,” a symbolic articulation of the event processed through and abstracted from our perception and response at silent levels II and III. The words that we use do not equate (“is” of identity) to the phenomena. The “map” does not and cannot embody all the structural characteristics of the ‘territory’ we try to represent. Yet we speak “as if” the words share identity with the object, event, or phenomena. To help

create closer relationship between the map and the territory, we can try to eliminate the use of the “is” of identity and not separate in language that which cannot separate in empirical reality, such as space-time, by adding a hyphen between word concepts.

We also have ability as humans to use words to talk about words we use. We define words with words. We use words “self-reflexively” to talk about words and what meaning we intend. Words used in this way express “higher” orders of abstraction of themselves, what Korzybski (1958) called the multi-ordinality (Johnson, 1974). We can perhaps most easily understand this by saying we can think about thinking, talk about talking, react to reactions and think-talk about our reactions to reactions. We use idea words to express ideas. When we talk about talking, “to talk about” represents a higher order of abstraction of meaning to “talking.” So in explaining the self-reflexiveness of language, I also hope to make clear that we as humans can use self-reflexiveness to become aware and examine the continuing and ongoing interactions between phenomena, their impact, our reaction and our response.

Psychotherapeutic Bases of Change Processes

Mahoney (1991, p. 254) reminds us to:

“Recall the assumptions on which all psychological and educational services rest: (1) that humans can, in fact, change; (2) that humans can help other humans change; and (3) that some forms of helping are more effective than others in encouraging and facilitating that change.”

Many psychotherapeutic approaches exist today, perhaps more than four hundred utilizing different processes and techniques (Prochaska & et al, 1994, 2010; Mahoney, 1991). Across approaches, the elements contributing to

therapeutic success in the therapeutic relationship include positive expectation, qualities of the therapeutic alliance, individual qualities that the client and the therapist bring to form the interrelationship, a safe, comfortable, healing setting, a conceptual plan and the ritual of therapy (Prochaska & Norcross, 2007; Frank & Frank, 1991; Hubble, Duncan & Miller, 1999). These address alliance and relationship in inter-acting and physical environments.

Prochaska & Norcross (2010) define processes of change as being:

“Processes of change are covert and overt activities that people use to alter emotions, thoughts, behaviors, or relationships related to a particular problem or more general patterns of living” (Prochaska & Norcross, 2010, p.11).

Within the spectrum of psychotherapeutic approaches, primary processes of change have emerged that use multiple strategies and techniques.

Prochaska & Norcross (2010) have identified ten primary processes of change used within the various schools of psycho-therapeutic approach.

1. *Consciousness raising* provided through education and feedback by providing information pertaining to the person and their identified issues.

2. *Catharsis/dramatic relief* – may occur through “re-living” the experiences, or by experiencing and expressing and releasing through thinking, feeling feelings and verbalizing.

3. *Self-reevaluation* – re-consideration and assessment of previously held ideas of self or an issue.

4. *Environmental reevaluation* – assessing the environment and making changes there to support intentional change.

5. *Self-Liberation* – can include personal commitment, making different choices or decisions, coming to believe in one’s self.
6. *Social Liberation* – external alternatives supportive of desired change.
7. *Counter-conditioning* – substituting or doing a different behavior in response to the stimulus.
8. *Stimulus Control* – changing environments to lessen the chance of the stimulus occurring.
9. *Contingency Management* – rewards and punishments.
10. *Helping relationships* – obtaining help from others who care whether through therapeutic alliance, social supports or support groups.

“Yes, humans can change – but doing so is much more difficult than many theories have admitted. This is, in fact, one of the important points of convergence across contemporary schools of thought in psychotherapy. Significant psychological change is rarely rapid or easy.” (Mahoney, 1991, p.18)

The foregoing discusses ideas of change processes. These described processes address applied processes of change for intentional or desired changes of thinking/feeling/behaving. Current change processes in psychotherapy consider change originating in separate realms of affect, cognition, and behavior (Prochaska & Norcross, 2010; Mahoney, 1991). These realms are entwined and do not function separately. The processes discussed here, in the context of psychotherapy have application beginning at the Verbal level. One could hypothesize the difficult-ness Mahoney acknowledges may be due to reaching toward Silent levels from without with abstracted meanings.

Neurofeedback Training

Neurofeedback Training (NFT) has a diverse history that has engaged the interest and participation of people from many different disciplines. Beginning with medical doctors and physiologists, the field includes clinical and developmental psychologists, psychophysicists, nurses, social workers, mental health counselors, educators, physicists, neuroscientists, engineers and computer programmers. Neurofeedback Training has been called Brainwave Biofeedback, EEG (Electroencephalography) Biofeedback Training or Treatment, Neuro-Biofeedback and more recently, Neurotherapy.

Neurofeedback Defined

Biofeedback is a training process that helps people *learn* how to change patterns of psychophysiological response, like muscle relaxation, hand warming, and heart rate control. In the operant conditioning forms of EEG Biofeedback Training, a person learns to change their brainwaves. The variously manufactured NFT systems work using a variety of diagnostics and training protocols. Brain wave activity is read by sensors placed on the scalp with grounds and references placed on the ear. The brainwave activity is then fed into a computer program where it is interpreted by the computer software. Often a video game that the trainee must control with their brain is used to “teach” and reward correct brainwave activity. Traditionally, the process involves testing, diagnosis, and use of particular protocols to suppress/inhibit or increase/augment particular frequency bandwidths associated with particular problems. NFT allows the brain for the first time to observe its own activity, in real time. It is as if the brain is

looking into a mirror at its own function and is put into an information loop with its own activity. The brain and CNS automatically use the presented information to more efficiently self-regulate, much the same way a person would wipe a smudge off their face when they noticed it looking into a mirror.

Neurofeedback has been well researched since its early beginnings in the late 1960's (Hammond, 2009). Its use has been rapidly expanding across many disciplines due to its unique ability to tap into “the power of the brain itself to mobilize its own naturally large but latent resources” Chernigovskaya, (1984, p. 126) for self-healing and self-regulation. NFT provides the opportunity for self-healing, self-organizing and self-regulating transformation within the electro-chemical or electro-physiological level of the brain and CNS. Neurofeedback Training has emerged as a viable educational system enabling individuals to change their brainwave patterns to achieve increased CNS efficiency and control through self-regulation of brain activity and the CNS through a non-invasive process.

Historical progression

An early history of the development of the EEG was written by Brazier (1961), and Millet (2001) and Borck (2005) cover Hans Berger's development of the human EEG. An in depth historical study of the development of NFT has yet to be written. Summaries of the history and development of NFT can be read in multiple resources including Moss (1999), Cantor (1999), Elbert et al (1983). In the popular press, Robbins (2008) provides an enjoyable and readable overview

but neglects to provide coverage of the latest advances in the NFT field incorporating NDS.

Around the turn of the 20th century, new perspectives in mathematics and physics created new ways of thinking and imaging the world as it was known at that time. As each academic discipline added to its particular field there were those who kept a more generalist or interdisciplinary vision and constantly tried to integrate those advances in to the body of knowledge about our human-ness. Threads from multiple disciplines ultimately came together to create the field of biofeedback, neurofeedback and in the last few years, this latest approach to NFT based in nonlinear dynamical operations, a great departure from the operant conditioning model that still dominates the current operating paradigm. NFT as a field has struggled with legitimacy and validity in its approach to changing the human condition. Johnson (2006) expressed that the field was too diversely represented by multiple professions, disciplines, inventors, researchers and characters to expect any unity within it.

Current Issues

In an editorial in *Clinical Electroencephalography* (2000), Frank Duffy, MD, of Harvard Medical School and developer of the quantitative EEG (qEEG) addresses the current state of EEG Biofeedback Therapy and the current issues in the field. He discusses two operant conditioning models of NFT, SMR (Sensory-Motor Response) training and alpha-theta training. Issues of concern mentioned include the general lack of understanding in regard to theory, goals and approaches. He questions the additional roles the practitioner may play in the

success of treatment. He mentions that the EEG and Clinical Neuroscience Society offer a special qEEG qualification exam, but notes that controversy surrounds professional requirements for the practice of EEG Biofeedback Therapy. He describes a lack of recommendations of standard practice in the field to address questions of diagnosis, assessment, practice criteria, procedures and evaluation, stating that the various manufacturers offer their own courses and certifications for use of their equipment. However, in examining the large body of research literature available, Duffy made the following statement,

“The literature, which lacks any negative study of substance, suggests that EBT should play a major therapeutic role in many difficult areas. In my opinion, if any medication had demonstrated such a wide spectrum of efficacy it would be universally accepted and widely used.” (Duffy, 2000, p. V)

The editorial highlights the exact issues Johnson (2006) referenced. In the overall, the efficacy of NFT has ample research to support much wider use in multiple settings. The discussion of Alpha-theta training or SMR training using an operant conditioning model seems to continue, when use of a system based in NDS combines the two and makes the discussion irrelevant. However, the operant conditioning model remains dominant at this space-time. One issue concerns the many different types of systems manufactured and used. Each one needs to prove the effectiveness of its application and technology advances so rapidly that NFT equipment constantly gets upgraded. There exists considerable investment in the treatment model of NFT including the use of the qEEG, an expensive evaluative tool that provides a snapshot of brain activity obtained often months previous to a given training trial. QEEG documentation provides a type of validation of NFT

effects and of neuroplasticity through neurological mapping across the course of training. Its use seems irrelevant to *training* when using a NDS NFT system that trains based on the real time moment to moment brainwave activity of the trainee. The relevancy of formal institutional research studies may suffer from the rapidity of technological advancement. Serious controversies and competitions within the industry hamper a unified front. These issues cannot receive adequate coverage within the scope of this study.

The most important focus remains that NFT exists as a viable, noninvasive effective training tool to activate and inform the self-healing and self-regulating capacities of the human brain and CNS. This has been documented in over 1000 studies in reference to epilepsy, ADHD, Anxiety, Anger, Autism and Asperger's Spectrum, Post Traumatic Stress, Sleep, Addictions, Pain, Headaches, Depression, Optimal performance, Pre-Menstrual Syndrome, Parkinson's Disease, Fibromyalgia and more (Hammond, 2009). It is profound, revolutionary, and disruptive to all that has gone before that NFT "works" without regard to age, degree of mental or physical impairment, willingness to cooperate, or belief system. What has not received adequate study or documentation references Neurofeedback trainees' experiences and responses to various aspects of their training.

In today's culture many people seek less intrusive modalities and explore alternative approaches to well-being including naturopathic, homeopathic, integrative and those of Eastern origin that consider the whole person as an organism-as-a-whole-interacting-within-environments and have been widely used

around the world across a very long space-time. Many people want to avoid allopathic pharmaceutical medications with multiple possible toxic side effects. As technology, computer science and the neurosciences advance, we learn more and more about the brain and central nervous system, brain plasticity, and our innate ability to heal ourselves when provided the needed information.

Seminal Studies

Brainwave groupings carry names associated with their type, frequency range and associated characteristics. Neurofeedback Training historically has worked by inhibiting or augmenting specific brainwave groupings.

Table 2.2 Traditional EEG Correlates

Traditional Bandwidth Name	Frequency Range	Characteristics & Associated Activity
Delta	1-4 Hz	Sleep, repair, complex problem solving (Demos, 2005), empathetic state (Wise, 1995)
Theta	4-8 Hz	Creativity, Insights, Intuition
Alpha	8-12 Hz	Meditation, Relaxation, Alert focus
SMR	12-15 Hz	Body relaxation, calming
Spindles	15-20 Hz	Stage II sleep (Stroebe & Glueck, 1973)
Low beta	13-21 Hz	(Newer) Problem-solving, outward focus and attention
Beta	20- 32 Hz	Focused attention, visual scanning, anxiety, worry, fear, frustration, excitement, hunger, surprise (Stroebe & Glueck, 1973)
Gamma	38-42 Hz	Higher mental processes

Sensorimotor Rhythm training (SMR) EEG operant conditioning was first used by Serman and Wyrwicka (1968). They established the ability of cats to learn to produce sensorimotor rhythm (SMR -12-15 Hz) on demand for food, eliminating early any suspicion of NFT placebo effects (Roth, Serman & Clemente, 1967; Wyrwicka & Serman, 1968; Serman, 1984; Serman, 1996; Serman, 2006; Demos, 2005). And in the strengthening of SMR, he produced seizure resistant cats which led to research in the use of NFT to reduce seizures in people whose seizures remained uncontrollable through the use of medications (Serman & Friar, 1972; Serman, 1973; Serman, 2000). Lubar (2003, 1994, 1984) also worked with people suffering from epileptic seizures and has primarily specialized in controlling problems associated with attention deficit and hyperactivity using protocols of inhibition and augmentation of specific brainwave bandwidths. Alpha enhancement (8-12 Hz) training began with Kamiya in 1962. Peniston and Kulkosky (1999) first published in 1989 on using the alpha-theta protocol for reducing alcohol addiction and Post Traumatic Stress (Budzynski, 1999; Moss, 1999). Current NFT protocols involve site specific training using specific protocols of inhibition and augmentation of brainwave bandwidths.

I think that even though these older systems of NFT work to produce fine results, they still use a linear top down change process imposed from without (if we use this protocol, we'll get this result.) that depends upon the practitioner's knowledge and skill. I think, despite the approach, NFT creates intrinsic dynamical change. I remained reluctant to join the field until a comprehensive

system was developed that did not require me to play God with someone's brain and CNS. I do not have that kind of confidence. The ZIN NDS approach to NFT respects and allows emergence from the bottom up of the self-regulating, self-organizing and self-healing abilities of the complex human organism-as-a-whole-interacting-with-environments across space-time. I think this difference creates a more seamless transformation, reducing difficulties of intentional and conscious efforts toward changing. This approach allows the individual CNS to address its own activity, in the current moment, as the self-organizing nonlinear dynamical system that it lives as, not as the subject of intervention from without. It seems healthier and safer, too.

The "it" of ZIN NFT

These concepts are important to understanding the ZIN approach to neurofeedback training because of its core developmental foundation within conceptual and mathematical non-linear dynamical systems. ZIN utilizes a training process that provides information in "real-time" to the CNS about its functioning that empowers the self-regulating and self-organizing capabilities inherent to each CNS. Training comprehensively, within and across neuronal synaptic spectrums, change or transformation is created throughout the totality of interactive systems across the entire range of human capacities. We cannot speak of ZIN as treatment because it goes beyond the reductionist idea of "treatment" for particular "diagnoses." ZIN NFT acts "agnostically" with regard to diagnosis. So, what's "wrong" or what "needs to be fixed" becomes irrelevant to the optimization strategies inherent in its application. In recruiting the optimization of

dynamical systems in the CNS during training, systems less optimal become automatically recruited toward optimization in a process that once begun, continues long after training has ended. It provides information to the person's CNS and brain about its own functioning and promotes self-organizing, self-regulation, and self-healing from within by responding to that information. Change and transformation begin and occur at Silent level 1. The older systems and some people dominant in the field continue to try to understand and to fit its structure and operation into a linear, elementalistic and reductionist formulations.

“Knowledge however grows by the receipt of meaningful information – that is, by the intake of messages by a knower who is capable of reorganizing his knowledge” (Boulding, 1956, p.198).

The ideas leading to the development of the Zengar non-linear dynamical systems approach to neurofeedback training began long ago. To create and develop ZIN, Valdeane and Susan Cheshire Brown brought together knowledge and ideas from many disciplines, including psychology, neurosciences, communications, mathematics, physics, physiology, psychophysiology, nursing, philosophy and computer science. The knowledge came through a lineage of innovators of the western world who carried ideas forward for over a hundred years and from the eastern world carried forward for thousands of years. Respecting, incorporating and building upon the knowledge base developed by the pioneers in the field, the Browns' have developed the next evolutionary order of NFT system based within NDS over the past ten years or so. Some applied ideas remain theoretical because we have not developed the means to language

them in even 20th century terms derived from quantum physics, but that are inherent in NDS approaches.

Development of the ZIN system

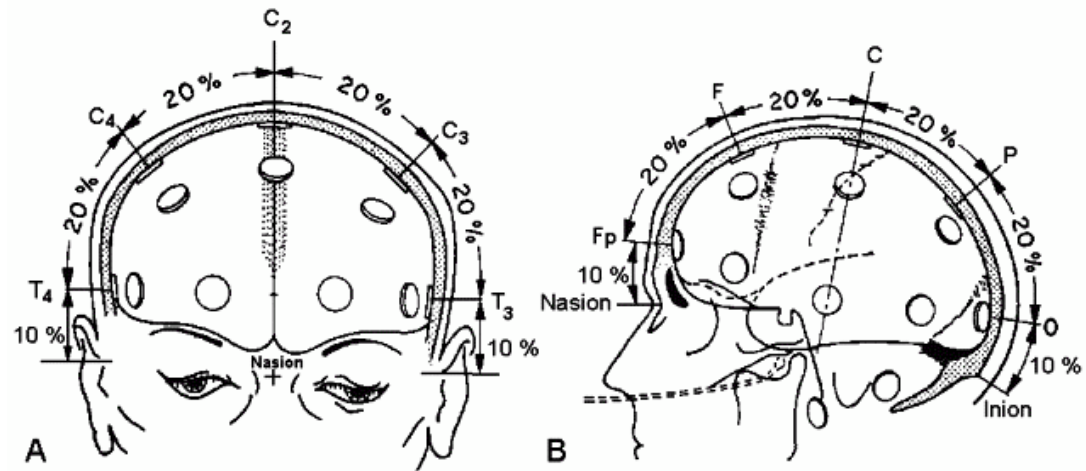
The roots of Val Brown's goals for enabling change from within the human condition were evident early on, as this quote referring to a new theoretical approach to psychotherapeutics he was developing shows:

“Thus, instead of dealing with complexes, syndromes, or behavior problems, this new approach would focus on explicating and transforming the way clients experience, appropriate, and surmount the situations they encounter in their world.” (Brown, 1986, p.129)

Val Brown entered the biofeedback and neurofeedback field in the early days of the seventies while in school, left the field for several years and returned to neurofeedback in the early 1990's. He published on his newly developed Five Phase Model in 1995. While still a linear process, he combined the positive aspects of known training protocols to develop a comprehensive approach to providing NFT that did not require particular protocols for particular disorders. During this space-time, Brown realized the importance of inhibiting or suppressing 3Hz for easing the emotional reactivity. He had found that surges at this hertz level specifically associated with the re-experiencing of traumatic emotional states. As in this instance, in the course of his work, he realized the older frequency based names for brainwaves parameters did not allow for exact clinical work. Building on the work of Sterman, Tansey, and Peniston, Brown developed a model of NFT introducing the paradigm shift to NDS (Brown, 1995).

Susan Cheshire Dermitt, and Valdeane Brown joined forces in 1996 and by late 1998 or early 1999 had co-created the Period 3 Approach (Brown & Brown,

1999?) to NFT which incorporated the nonlinear dynamical systems model of NFT using two real-time channels of EEG, and using C3 and C4 sensor placement of the universal 10-20 EEG placement grid (Jasper, 1958).



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Leaving behind the less precise training parameters of delta, theta, alpha, SMR, and beta and incorporating newly identified specific brainwave frequency correlates into the training promoted more rapid and profound transformation without negative training effects. Currently:

“ZIN trains all frequencies from 0.001 to 62 Hz throughout each session. Proprietary algorithms developed by Valdeane Brown establish rules whereby variability is detected in emergent EEG patterns that indicate turbulence or instability using Gabor Joint Time-Frequency Analysis. When excessive variability or decreased complexity is detected by the various algorithms indicating that the CNS has fallen out of optimal flexibility and resilience, interrupts are triggered in the audio and video presentation to the trainee. These at times very subtle and often consciously barely detectable interruptions serve to return the CNS to the present moment. In so doing, the CNS gets a new initial starting place from which to begin. Repeating these, often below conscious awareness, returns to more optimal beginnings over sessions establishes optimization of the CNS such that dys-regulatory patterns are abandoned by the CNS and symptoms consequently “drop out.” (Alan Bachers, Ph.D., 2010, personal communication).

Table 2.3 ZIN Brainwave EEG Correlates

Hertz Range	Modern Association	Current ZIN targeting
.001-2 Hz	Movement/Artifact; CNS Structural Changes Sleep repair, Body discomfort Presence of electrical current in the body	.001-6 Hz
3 Hz	Emotional reactivity, trauma, unslept, In pain, feeling “off”	
5 Hz	Cognitive reactivity	
7 Hz	“Aha” moments, Archetypal imagery	
8-13 Hz	Engaged/Immersed Thought Relaxation, Feelings of peacefulness and well-being	8-13 Hz
SMR 14 Hz	Muscular-Skeletal Awareness Awareness within & without, Calming, quieting, feeling safe	13-15 Hz 9-19 Hz
15-18 Hz	Hyper-focus, “tunnel vision,” Fight, flight, or freeze, stress response	
21 Hz	“Aura” frequency, deconstructive processing of fixed attractors, letting go	20-23 Hz 23-28 Hz
28 Hz	Physical relaxation, dilation of blood vessels in hands and feet	
23-38 Hz	Dwelling, Hyper-vigilance Over-thinking, Anxiety, Panic, Catastrophizing, Ruminating	33-37 Hz
40-42 Hz	Transcendent Multi-focal, multi-tasking Integration, consolidation, binding, Allowing all functions to interconnect Fluidly	38-42 Hz 46-52 Hz 52-59 Hz

(Brown & Brown, 2004; 2010)

The Zengar Institute NeuroOptimal NFT system represents a major paradigm shift in the world of neurofeedback training because of its advanced technology and its foundational development, based in theory, design and application on non-linear dynamical systems. Unlike any other neurofeedback training system at this time, ZIN utilizes a comprehensive approach to re-normalizing EEG. Some aspects of its advanced design include:

1. Allows comprehensive, real time adaptive training throughout the brainwave spectrum of .001-62 hertz using sixteen “floating” precisely mathematically figured targets based on known functional brainwave activity.
2. Training is comprehensive, not site or diagnosis specific.
3. Coherence and Synchrony training occur
4. Diagnostically agnostic, meaning training requires no diagnostic testing or diagnostically dependent training protocols.
5. The person's own brain determines what it needs.
6. Practitioners are easily trained because the technology is easy to use and ZIN requires no diagnostic assessment.

Using 16 floating target areas, eight on each side, with various parameters from .001-42 hertz, with options of training up through .001 through 62 hertz, ZIN NFT also trains for coherence and synchrony within the two sides of the brain. It utilizes the C3 and C4 sensor placement of the universal 10-20 scalp grid, and its application enables the person’s own brain to train toward its own self-determined optimal functioning comprehensively. This process occurs by

monitoring and providing information about emerging turbulence of the brain's electrical activity to itself through auditory and visual feedback. Our self-organizing and self-regulating capacities seek optimal efficiency and functionality. By providing needed information about its functioning, electrochemical change occurs within our brain and central nervous system. This change occurs through the releasing of less than optimal, habitual patterns of response within the brain and CNS and returning the person to "present" (now existing and in progress). In extension, the human mind/body/spirit in "presence" (functioning with the qualities of poise, effectiveness and self-control that enable a person to say or do the right thing in any given situation) has flexibility and resilience enabling people to receive, process, integrate-store and respond-adapt to experience optimally.

Under these conditions the CNS and brain of the person automatically use the presented information to more efficiently organize, i.e., self-regulate. As it does so, patterns of erratic, emerging variability (reflecting an overly-ordered response) or patterns of turbulence automatically diminish across the entire spectrum of brain activity, creating functional "responsive" change within the human organism-as-a-whole as it operates within wider environments. NFT increases flexibility and resilience at the source, within the brain and CNS, which regulates all other inter-related, inter-dependent systems within our human organism.

Literature Review Specific to the Current Study

Recent Qualitative Studies

While the efficacy of NFT to treat a wide variety of diagnosed disorders has been well established, few studies have examined the lived experience of people who have participated in neurofeedback training. Three studies were found that address aspects of the lived experience of Neurofeedback Training, using more traditional neurofeedback systems approaches. Parker (2003) examined the experiences of adults in response to an initial NFT session during the first 48 hours post session. Monjezi (2005) studied perceived changes in quality of life for people diagnosed with Type 1 diabetes mellitus after receiving 20 NFT sessions. Bryne (2005) investigated the lived experience of mothers of children diagnosed with autism who had participated in neurofeedback therapy. A further discussion of these three studies follows.

Parker

Parker (2003) investigated the reported experienced responses of 15 adults in what she has coined as the Post Initial Neurofeedback (PIN) period, the first 48 hours following an initial session using an operant conditioning model of NFT. Using the NeuroCybernetics system developed by Othmer and Othmer at EEG Spectrum International, Parker implemented their standardized (2002) protocols, individualized through their protocol decision tree. The initial 30 minute training session used either T-3 and T-4 sensor placement or C-3 and C-4 sensor placement to augment Beta (15-18 Hz + or -)/SMR (12-15 Hz + or -) and inhibit Theta (4-7 HZ) brainwave frequencies. The augmented or reward frequencies become further

individualized and optimized by incremental increases or decreases of Hz frequency training within Beta/SMR. These levels become determined through the verbal interaction of the trainer and trainee about the trainee's expression of experienced discomfort. Trainees participated in the Space Race game to receive auditory and visual feedback.

Years of ongoing participant report and input have guided various NFT systems technological and training advancements. Parker's study may represent the first formal investigation and documentation of participants reported experience of response to an initial NFT session during the PIN using any established system of NFT. The volunteer participants were indentified as functional adults, defined as "without problems that would interfere with functionality" (Parker, 2003, p. 60). Participants were asked to rate their three most problematic symptoms prior to receiving the initial NFT session. Results included reports of greater emotional stability, improved thought processing and attentiveness, increased energy levels and feelings of well-being. Stress and pain reduction reportedly occurred. Participants reported changes in aspects of sleep.

"The majority reported that their quality of sleep was worse than their normal pattern. Six participants woke during the first PIN night. One slept longer than usual. Two woke up feeling groggy and experienced difficulty waking up, while three felt renewed, vigorous, and more rested upon waking." (Parker, 2003, p.67)

Some experiences reported by some participants included feelings of dizziness, light-headedness, grogginess, headache and increase of tinnitus symptoms. Some negative responses seem likely to occur due to protocol dictates of the initial training session requiring "the frequency is raised and lowered in incremental

steps until uncomfortable symptoms are produced and the optimal training frequency is established,” (Parker, 2003, p.52). Parker’s participants reported their responses to the initial NFT experience as ranging from mild to profound, with all affects-effects disappearing prior to 48 hours PIN. This study confirms and expands upon some anecdotally reported post initial training responses and those case study reports that include a report of initial response to NFT. It provides insight into the diversity of individuals’ lived experiences in response to a single NFT session, and may identify some areas of commonly experienced responses to NFT that go beyond presenting issues and stated goals.

Monjezi

Description of the lived experience of two participants in response to receiving 20 NFT sessions for management of the chronic disease Type-1 diabetes mellitus in respect to quality of life (QOL) constituted the substance of Monjezi’s (2005) study. Monjezi did not identify the NFT system used, but he identified the diagnostic table he used leading to training protocol choices in references to Othmer, Othmer and Kaiser (unpublished). NFT protocols indicated he used augmentation or reward of Beta/SMR, and inhibition of Delta, Theta, and High Beta (22-36 HZ). Training occurred by participants controlling aspects of an unidentified game included in the system. Participants received 20 sessions of NFT, each including about 30 minutes actual training time, in periods of 2 minutes, 50 seconds, followed by a 10 second pause. Participant 1 trained using a monopolar protocol using sensor placement at either C-3 or C-4 for all sessions. Participant 2 received C-3 or C-4 monopolar training for 10 sessions and 10

sessions of bipolar inter-hemispheric training using the C-3 and C-4 sensor placement.

Interviews of the two participants were conducted at the beginning of the 20 session series, following series completion, and as follow up, again, 16 days later. Subjective reports of improved QOL were attributed to physical and emotional symptom diminishment and to improved interrelationships due to the NFT and interactions with the researcher which provided opportunity to talk about previously undiscussed personal issues. Seven aspects of improved QOL emerged:

1. symptom improvements;
2. improved personal management of diabetes, especially blood glucose levels;
3. increased overall feelings of calmness and relaxation;
4. improved clarity of thought toward family and financial issues;
5. increased energy and tolerance toward life challenges;
6. increased mental clarity toward life problems and improved locus of control; and
7. more optimism concerning future options for coping with major life issues.

Repeated reports on checklists rating severity of symptoms demonstrated improvement of specific symptoms rated as problematic. Both participants reported feeling happier and less depressed. Both reported elimination of feelings of anxiety. Changes, significant, but not necessarily related to diabetes, reported

by Participant 2 included elimination of chronic pain and headaches. She reported decrease in feelings of anger, irritability, hyperactivity, impulsivity, and having obsessive thoughts. She expressed feeling more confident. She reported increased motivation and had taken action toward finding a more enjoyable employment. Participant 1 reported decreased problems with hyper-focus and anger. She reported feeling less likely to get upset by others' actions. This study of two women's experience of NFT, who have lived with diabetes for many years, indicates improved QOL related to doing NFT. A review of statements made by the participants seems to identify possible positive changes beyond the problem focus and provide insight into the change process occurring through NFT.

Byrne

Byrne (2005) examined the lived experiences of mothers of children diagnosed as autistic who had undergone NFT. Her participants came to her from various sources. The particular NFT systems used for training and protocols followed were not identified. The children had received varying numbers of sessions. The research questions guiding the interviewing process specifically addressed whether NFT made a difference in the lived experiences of the family with a child with autism; what differences occurred; and how differences impacted the child and family. Thematic emergence revealed:

1. decreased stress/frustration, increased calm
2. enhanced family participation/increased participation in family activities;
3. increased interest in social interaction

4. increased ability in expression of thoughts, feelings and needs
5. increased awareness of self in relation to external world
6. improved self confidence and self esteem
7. improved ability and/or quantity of verbal expression
8. improved scholastic performance or ability in school based activities
9. increased comprehension of receptive language, information processing and/or abstract thought
10. increased self-sufficiency in ADLs (activities of daily living)

Summary of Qualitative Studies

Qualitative studies of lived experiences of NFT provide evidence of perceived functional changes that occur as result of NFT. Silent levels of change occur within the CNS and brain resulting in perceived changes throughout mind-body-spirit manifested in feeling/thinking/behaving within environments both internal and external as demonstrated by verbalized expression and functional change. This constitutes first and second order change. Change occurring within and manifesting outward (first order) and impacting the environments in which the person interacts (second order). The advantages offered by interviews allow us to understand the range of individual changes that can occur through NFT. Byrne's (2005) did not abstract the themes further into a quality of life (QOL) and improved well being interpretation, but the study speaks to QOL, not only for the child diagnosed with autism but also to family and beyond. By focusing on interviews with the mothers, we get a sense of how the child's experience in daily

life improved and also how changes in the autistic child impacted family, school and other interrelationships.

ZIN Studies

Few studies exist that incorporate the ZIN approach to NFT. Four studies are currently available. Two are comprised of single case studies, one of ZIN NFT following traumatic brain injury resulting from a motorcycle accident (Andreoli, 2004), and the other demonstrating QEEG changes in a woman with Lyme disease (O'Malley, 2006) who participated in ZIN NFT. Johnson (2005) compared training results of ZIN NFT to a biofeedback system for treatment of sleep disturbance that accompanies chronic pain within a hospital based pain clinic and De Long (2002) compared students who received neuro-cognitive coaching and an early version of ZIN NFT to a group who did not, to determine if academic performance outcomes would differ. Each of these studies has relevance to the current research due to the wide representation of presenting issues among the research sample.

DeLong

DeLong studied academic outcomes when students in a stress reduced learning environment received Period Three Approach NFT and neuro-cognitive coaching. DeLong used an intervention and control group model comparing two student groups, one receiving NFT and coaching and the other not, over a ninety day interval. She found the NFT/coaching group increased their auditory discrimination skills by 290% compared to the control group, probably indicative of improved ability to attend and focus. The NFT/coaching group also

experienced a 340% enhanced overall academic achievement over the control group as demonstrated through the use of pre and post testing on the Peabody Picture Vocabulary Test. Improvements were seen in reading and math scores and although not as dramatic, still 162% in reading skill development and 157% in global math achievement over the control group's scores.

Andreoli

This single case study concerned a 48 year old man who suffered a traumatic brain injury in a motorcycle accident leaving him permanently disabled due to neurological and orthopedic injuries. Andreoli provided twice weekly ZIN NFT sessions over a period of five months. Results, measured by qEEG (Quantitative EEG), ANAM (Automated Neuropsychological Assessment Metrics) and subjective report, included improved ability to access and express emotions and improved cognitive functioning. The man reported improved concentration and attention as evidenced by the example of being able to read again for long periods of time without interruption. A dramatic shift was described as occurring about seventy-five percent into the course of training. The man described his experience in these words,

“I feel as though I’ve been using a two inch strip of my brain all my life and just opened up two new regions above both ears maybe another inch and a half wide extending from just behind my eyes to the back of my head. I seem to have a broader look on everything I’ve never been able to express myself in print like this before, although I’ve wanted to in the worst way!! The words/thoughts never seemed to materialize so I never seemed to try. Today after my neurofeedback training, I couldn’t wait to get home and write this story....” (Andreoli, 2004, p.26)

Marvin Berman, Ph.D., of the research group overseeing this study made this comment,

“...He had been in weekly psychotherapy for about a year prior to the period of NCP [NeuroCARE Pro] treatment and had not made much progress compared to his NCP experience. I think it catalyzed a level of personality integration that he had not been able to achieve prior to this training.” (Berman, 2008)

Johnson

Johnson compared the use of the Zengar Period 3 Protocol NFT to biofeedback for sleep disturbance that accompanied chronic pain. Twenty-two of twenty-seven participants completed the study. Ten participants received a standard pain management biofeedback protocol and twelve received the NFT over a period of three weeks. Both groups did equally well on the clinical measures used, the Pittsburgh Sleep Quality Index and the Short Index of Self Actualization. Johnson concluded that the NFT was effective in improving the sleep of the participants, and had a positive effect on the clinical indexes of improvement. The group receiving NFT was reported as experiencing more depression than the biofeedback group at the beginning of the study. At the end of the study both groups experienced decreased symptoms of depression at equal levels, interesting to note due to the random assignment.

O'Malley and Hurd

This case study concerned a sixty-three year old woman diagnosed with chronic Lyme disease. SPECT scan and MRI data indicated “compromised vasculature and white matter lesions” (O'Malley, 2006, slide 3). She had gotten another type of NFT for a year and a half along with hyperbaric sessions without

successfully gaining relief from her symptoms, which included sleep issues. Repeated qEEGs were used to track changes in EEG. One had been done prior to the onset of the Lyme disease in 2000. Others were done in 2003, 2004 and after ZIN training in 2005. She received just over thirty sessions of ZIN during a six month course of training. Symptoms were resolved, and qEEG maps showed renormalization, endorsing the subjective functional improvement reported.

Chapter Summary

In this rather lengthy chapter, I have discussed historical, theoretical and conceptual building blocks developed in mathematics and physics and applied to the complex science of human-ness. I have discussed change and change processes from the traditional and NDS points of view. I have touched on the history and development of the neurofeedback field and some of its current issues. The development of the ZIN NFT system and the significance of its design and operations based on NDS applications to the human change process has been explained. Finally, current qualitative studies that have explored clients' responses to NFT using other systems and for specific purposes were highlighted. The chapter closed with coverage of the few studies using ZIN systems. The following chapter presents the methodology of this study and includes a review of the literature supporting the study design.

Chapter 3 - Methodology

Introduction

This study was designed to explore and describe clients' experience to ZIN Neurofeedback Training received in the context of psychotherapy. The research explores client descriptions of the effects they attributed to ZIN neurofeedback training in order to understand the meaning of the experience across the course of training and within the context of their lives.

The technological advancements of the ZIN system of NFT represent a dramatic departure from previously available processes of NFT. Increased understanding of these phenomena can provide insight into the range of potential benefit of ZIN neurofeedback training. The research can provide insight to potential practitioners and to those who currently provide training about how the experience may be perceived by the trainee. The research can provide information to people seeking NFT about how ZIN NFT has been experienced subjectively and what they might expect as they train. It can provide insight into perceived processes of change from the client's point of view. It will serve as foundational research for further qualitative and quantitative studies of ZIN NFT.

This chapter describes and explains aspects of methodology used in this study. Topics covered include the research design, the rationale for using a qualitative approach, the research sample, the methods and processes used for

data collection and analysis. Also included is discussion of ethical considerations, trustworthiness and limitations of the study.

Research Design

This research began with the *“Have you noticed any effects since your last visit that you think might be related to your training?”* question, but the idea for this study grew directly out of two neurofeedback training presentations of my mentor, Alan Bachers. One contained discussion of possible consequences experienced through NFT (Bachers, 2004) and the second (Bachers, 2005) discussed potential stages of development experienced through NFT. He invited collaboration. I remember thinking, as I listened, that would make a great dissertation topic because the ideas had not been formally researched.

I wanted to find out how people answer that question across the space-time of their trainings. Were there stages of change experienced? I wondered how people experienced those effects beyond the training. I wanted to find out if people experienced changes that went beyond their presenting issues. I wanted to step away from my role as therapist and NF practitioner to take a different perspective, to look at the experience of NFT from the clients' point of view. I wondered if my story of how NFT effected/affected me was typical. I wondered if people had experienced a period of a couple of weeks of what I called dumping dreams, as I had. I wondered if the story of how change occurs through the experience of ZIN was a valid one I had accurately constructed. My perceptions, the story I held, had developed from my own experiences, and evolved from what I had heard from family and friends, presentations, the Drs. Brown, from the NFT

forums and from my clients. I wondered if evidence could be found to support, refute or alter these perceptions. What research question(s) would allow the greatest freedom to explore my curiosities? What research method(s) would best serve?

The questions invited descriptive answers. A qualitative research endeavor provides opportunity for discovery, exploration and thorough understanding about the object of study. Some strengths of qualitative research design include:

- 1). an opportunity to examine concurrent and past characteristics of a chosen object of study, and the complexity of multiple influences;
- 2). an opportunity to generate hypotheses about the object of study out of information gathered; and
- 3). an opportunity to examine, realize, identify and report in detail on the influence of the many aspects of complex systems levels involved (Bloomberg & Volpe, 2008; Denzin & Lincoln, 2005). Within the qualitative research tradition, case study allows the ecological description and multiple means of analysis. Phenomenological research strives to capture the essential character of the lived experience of people in relation to object of study. It recognizes the impact and role of the researcher within the field (Lewin, 1997) and provides means for a conscious recognition and setting aside of preconceived ideas (Moustakas, 1994; Creswell, 1998).

A practice based study provided a most realistic setting to explore the experience of neurofeedback training. The study followed qualitative research

guidelines to explore and further discover and describe clients' experience of ZIN Neurofeedback Training received in the context of psychotherapy. For my primary approach, I chose a multiple case study design using an embedded analysis approach (Yin, 2009; Stake, 2006). Data was collected primarily from documents, and some interviews (Kvale, 1996; Josselson & Lieblich, 1995). Phenomenological analytical steps (Moustakas, 1994; Creswell, 1998) were used to explore and synthesize the core data. Interview material was used to confirm and support core data. Simple quantitative analysis was employed to provide additional information about conditions and relationships.

Research Question

The most encompassing question was: *How did clients describe the experience of ZIN NFT received in the context of psychotherapy?* To give contextual structure to the research, that question guided the research using the individual case file documents.

For the supportive interviews, the opening question was: "Can you tell me about a time when you first realized NFT was helping you?" Other questions included: "Can you explain how NFT has effected how you experience day to day living?" "Did you experience changes you attributed to your NFT that were surprising or unexpected?" When answers to these questions had been thoroughly explored, additional questions were formulated from information gathered from case notes to gain further understanding of the experienced processes of NFT.

Participants

The thirty-one (31) subject cases in this research project were clients who received neurofeedback training within the scope of my private practice and licensure as a mental health counselor. Participants included twenty-six (26) former clients, three (3) clients who continued to come in periodically for tune-ups and two (2) current clients who expressed an interest to participate in the study when they heard about the project.

Selection Process

Following International University of Graduate Studies Internal Review Board (IRB) approval of the proposed study, I directed my assistant to review the closed/inactive case files of clients to find those who received neurofeedback training between January, 2004 and July, 2008. I wanted to take a step back from the initial case selection process to provide one layer of distance to the factors of my knowledge of the particulars of the cases and my primary relationship with my clients. My thought was that a more representative sample would emerge if I did not personally select the cases. Twenty-nine case files were chosen. By my direction, selection of cases was primarily determined by who had answered the pre-session evaluation question: *“Have you noticed any effects since your last visit that you think might be related to your training?”* with some consistency and detail. Secondary consideration was given to the detail and consistency of the case notes. Twenty-nine seemed a good number to study for a quality research project about this subject and not too many for a qualitative research design.

Of the twenty-nine, three turned out to be clients who continued to come in for tune-ups. They were selected by feature of their first files* being among those examined by my assistant. [*When I changed location in July, 2008, and began to practice under the umbrella of the group practice, new files were created for continuing clients.] The two (then) current clients expressed interest in being participants when they heard about the research.

Since the study proposal that was approved by the IRB had not included any clients with whom I had continuing contact, I contacted the IRB for additional consideration. I received approval to include the additional participants with an advisement to thoroughly discuss ideas of dual relationship and the freedom to withdraw at any point. These issues were discussed with each person. The decision was made to use these clients' responses to the primary question from their case notes and any applicable case notes only up until they had heard of the study, in keeping with the spirit of the other cases chosen. Interviews were then conducted promptly.

Letters of *Invitation to Participate in Research, Informed Consent and Confidentiality* (Appendix K) were mailed to three former clients for the purpose of interviewing. The purpose of interviewing was to enhance core data. The three former clients were selected based on case content and knowledge of current contact information. The letters were handed to the three continuing clients and two current clients. From the former clients contacted, I hoped to obtain historical perspective and to obtain additional information for clarification, quality

and detail. I thought continuing and current clients would offer additional perspectives and added insights into the research questions.

For the continuing and current clients, I wanted to make sure the relationship remained transparent, supportive, and that any concern of dual relationship was thoroughly explored. All invited, consented and returned their signed consents and statements of confidentiality.

Demographics

The demographics concerning individual participants were not factored into their selection. Compilation, classification and description of the participants' characteristics occurred as part of the cross-case analysis. Of the thirty-one participants, fifteen (15) were male, and sixteen (16) were female. My practice typically has more female than male clients, usually about 60% to 40%, female to male. The age range was 13 months old to 81 years old. Elders were over-represented in the sample compared to my practice. Usually, only one client, out of about one hundred, was an elder. All participants had Caucasian ethnicity, with one exception, Client 9 – Kari, who was a Hawaiian woman, twenty-eight (28) years old. Typically one of about every thirty clients has ethnicity other than Caucasian. Children were under-represented compared to my practice and usually constitute about 25% of clients. However, in the review of cases, parents were the primary consistent reporters of change and my focus was on the individual's report. The baby, an exception, was included out of uniqueness and with his responses as reported by the mother since he couldn't speak for himself.

A summary table of the demographic information by participant including their assigned number, gender, pseudonym, age, number of sessions of NFT received, marital status, household members and occupation can be found in Appendix J. This information was obtained from the case files. The number of NFT sessions represented through this study ranged from six (6) to one hundred eighteen (118). A decision was made not to delimit the study to a specific number of NFT sessions, except as noted above for the five active participants. The decision was based on the desire to accurately present that variable as an aspect to be considered. The number of sessions, as well as the space-time interval between and the complete space-time span of NFT sessions vary by client. As a practice based study, the naturally occurring variables of complex human social interactions (Systems model 8) were recognized as occurring.

Presenting Issues

The primary presenting issues of people who seek help in my practice were well represented in the sample. These occurred, in order of frequency as:

- 1) Problems of mood and feelings of depression,
- 2) Attention issues and symptoms associated with attention deficits and hyperactivity, and
- 3) Symptoms and feelings associated with anxiousness and anxiety.
- 4) Sleep was frequently mentioned as a problem, but not so often as the primary presenting issue. Seventeen, (17), of the selected client-subject cases, identified sleep problems. Just six (6) client-subjects cases identified sleep problems as their primary presenting problem.

Some clients identified themselves as having a specific DSM-IV (APA, 1994) “disorder,” such as ADHD, PTSD, or OCD that had been previously diagnosed; but the majority spoke to a category of symptoms such as depression, anxiety, or sleep problems. Some provided their specific symptoms. Health issues reported most often as primary presenting issues included pain, primarily attributed to headaches and fibromyalgia. Inquiries about physical issues were made during the initial meetings. Appendix D contains a listing of descriptors used by each client-subject in their self reported presenting issues as recorded in the case notes. The second table identifies the dominant categories of presenting issues for summary and simplification

Research Methods and Procedures

This section addresses the steps and procedures employed to complete this study. Once selected, client case files were assigned a number. The core data of this research consisted of the verbatim responses given to the question, “*Have you noticed any effects since your last visit that you think might be related to your training?*” extracted from the pre-session evaluation. Cases chosen for this study characteristically had detailed responses to the question. Additional information came from the case notes and interviews. A few participants were interviewed to provide additional depth, insight and historical perspective to the experience of NFT and the process of change. Interviews were recorded on an Olympus DS-2 digital voice recorder and then transcribed into a word document.

Initial Extraction Process

The initial extraction incorporated a process called horizontalization (Moustakas, 1994; Creswell, 1998) where every statement pertaining to the phenomena was recorded and every statement was equally valued. For each client, the research assistant was instructed to record the verbatim responses to the question *“Have you noticed any effects since your last visit that you think might be related to your training?”* onto 5”x 8” cards by client (first number) and session (second number) as shown.

“1-3: felt more relaxed until 6 pm, last few nights slept better”

“1-4: felt relaxed when I left here, lasted into evening. Feeling better”

When this process was completed, the case files were placed in a storage box, and temporarily set aside.

Thinking about my research questions, I then reflected on the collective responses recorded on the 5”x 8” cards. I thought I recognized who some of the clients were from the responses. I began to formulate some tentative theme topics. I had some ideas of what might emerge as themes based on two presentations of my mentor and conversations with the Drs. Brown. I had read comments posted in the members’ online forum about reported changes and effects posted by other practitioners. I had ideas emerging from my own experience of NFT and from my client reports over the past six years. I set those ideas aside as best I could. The conscious setting aside of my preconceived ideas and the ideas of others I carried is known as bracketing or the epoche process (Moustakas, 1994; Creswell, 1998).

Second Extraction and First Themes

For the next step, I rewrote the recorded responses divided into meaning units, as I perceived them, once again by assigned participant number and session number, as demonstrated below:

1-3: felt more relaxed until 6 pm

1-3: last few nights slept better

1-4: felt relaxed when I left here, lasted into evening

1-4: feeling better

Some tentative themes titles were posted on my home office wall based on the specific language used in the meaning units, such as, “Relaxed,” “Sleep,” and “Feeling Better.” Pulling the theme headings from the meaning units kept the thematic meaning closer to the experience creating a thinner layer of abstraction. Thematic headings were intentionally broad to capture fully the essence of the meaning units. Each meaning unit was assigned to a theme, including one called “Miscellaneous.” I asked a colleague to assist in checking for consistency, relevancy and to provide a check for inter-rater reliability.

I did not want to have meaning units multiply placed. Where a meaning unit seemed to fit under multiple themes, the file was reviewed for context; then the meaning unit was assigned for best fit. Meaning units were not duplicated under multiple themes. It was not until this time that I returned to my case files and became sure of which client cases had been chosen. I read the files and re-familiarized myself to the client and their story.

Thematic Distillation

The themed assigned meaning units were removed from the wall and compiled within theme by client number and session number into a word document, with primacy on the session when the meaning unit occurred. This excerpt from the Sleep theme pod illustrates:

23-1: slept well

31-1: Slept well, better than in months, woke up wide awake

20-2: slept through the night

25-2: fell asleep a little earlier and didn't wake up as frequently

28-2: sleep improved: better than in a long time

31-2: Quality of sleep improved but not as great as the first night

1-3: sleep improved

5-3: slept in my own room 3 nights

7-3: slept last night 6.5 hrs – hasn't happened in years!

10-3: sleeping better

The theme pods were arranged alphabetically and files were re-examined for content consistency and meaning coherence. I again asked a colleague to review the data. We discussed theme headings and meaning units in relation to the research questions. As a result, two theme pods were combined. Two theme headings were eliminated and the meaning units assigned to other pods.

Interviews

Interviews were conducted to enhance core data and to enrich the individual case studies presented. Interviews occurred at various points in the research process after IRB approval was obtained. Interviews were not analyzed using phenomenological methods. Interviews were recorded from the digital recorder to a compact disc, then transcribed into a word document. The intention

of interviewing was to obtain historical perspective of remembered perceived effects and to provide additional information for clarification, quality and detail. I wanted additional perspectives and added insights into the research question that continuing and current clients could offer. Direct quotations from interviews were used to provide substance and depth to the thematic findings as well as to highlight individual experiences. Quotations were checked for accuracy and for an accuracy of meaning intent with the interviewees.

Compiling the Data in a Variety of Formats for Analysis

Various formats were used to configure the data to obtain multiple perspectives. I held the journalist's perspective outline of who, what, where, when and how in my consciousness to guide me. Besides the thematic pods (Appendix B) with the intact verbatim responses to the *"Have you noticed any effects since your last visit that you think might be related to your training?"* question format, the responses were compiled in pods as they occurred by session (Appendix C) allowing me to reflect on the effects reported by clients from session to session. From this I constructed a table to compare the number of responses (Appendix G) that occurred thematically by session and to total the number of meaning units within each thematic pod. Case summaries were compiled for all thirty-one (31) clients (Appendix A) that included the assigned client number, gender, assigned pseudonym, age, number of sessions, self described issues, and self reported medications, alcohol and drug usage. Clients verbatim responses to the question were recorded by session as well as any specific subjective supporting statements found in the case notes concerning the

perceived effects or changes. I went back later and added the space-time span for each client's sessions, again reviewing case file content for anything that might enrich the research findings. A table (Appendix E) was constructed listing each client and theme category, noting the number of responses made by a client in a theme and another (Appendix F) noting by session number each time a thematic meaning unit emerged. Other tables specific to a theme were made as analysis was done for understanding and presentation clarity. These multiple means of cross case analysis allowed me to develop an understanding of the textural and structural similarities and differences of effects and experiences. Writing up individual case summaries and later the selected individual case studies permitted me to gain a greater understanding of the nuances of an individual's experience and effects within expanded contexts.

Ethical issues

This research was approved by the International University for Graduate Studies Institutional Review Board. Blank copies of the letters of invitation, consent and confidentiality used are located in Appendix K. The protection of research participants and their privacy was given utmost attention in the research. Pseudonyms were assigned for the purpose of data reporting. My assistant was held to the same ethical standards of my profession regarding the privacy and confidentiality of client information and the case files. Information of a private and confidential nature specific to a client that could lead to their identification by a reader was not used without permission. Interviewees were given final approval of any quotes used in the study. All case files used for data collection for this

project were stored securely in a locked cabinet in a locked office. The computer used for this research was secured in a locked office when the researcher was absent. Regular back-up of computerized materials was made to flash drives specifically designated for the project. All research analysis was performed by the researcher and without qualitative analytic software.

Settings for NFT Received in the Context of Psychotherapy

Neurofeedback sessions took place in my practice office, located in a house that had been converted into offices. My office was located in what was formerly the living room/dining room area. The therapy setting was warm and inviting, thickly carpeted, with a couch and two comfortable chairs arranged around a fireplace with an electric fireplace insert. I had one wall lined with books in bookcases. Another wall had a large picture window that looked out toward the bay and mountains. I had a play therapy and sand-tray area located in what had been the dining area. My desk separated the two areas. Many clients commented on the warmth, comfort and home-like ambience. I practiced in this location between May, 2000 and July, 2008.

In July, 2008 I moved into a new location, one offering additional space and the opportunity to continue an independent private practice under an umbrella of group practice within a clinic setting. After painting the room in a warm pale yellow and dark slate green, I brought the furniture, rug, pictures and equipment from the other office. Again, I created an environment of warmth, comfort and safety. Sessions occurring after July, 2008 occurred in this setting. Participants in this study who continued to receive NFT “tune-ups” received sessions in both

locations. Participants who were current clients received their training and therapy only in the second setting.

I believe the therapeutic environment has vital importance. Offices devoted to therapy often seem sterile, utilitarian and uninviting, in my opinion and experience. They can sometimes feel too small or too impersonal. Clients entering psychotherapy are entering into an intimate relationship and the room “holds” the energetic space and atmosphere. People respond to color, lighting, arrangement, seating and setting. Noise can be an issue. The environment can carry a message of safety, comfort and a valuing of the person for the work upon which they are embarking. I do not necessarily think that the room needs or ought to project or reflect the personality of the therapist although I see no harm in that. The room can be warm, welcoming and yet somewhat “neutral” to the personality of the therapist.

Within clinics or groups, values of the stakeholder are often evident, and if the therapist does not have a space of their own, they need to be sensitive to their own environmental and spatial needs and adaptability. My office environments were created for personal as well as client comfort.

Neurofeedback Training Protocol

For neurofeedback training in my practice, clients sit in a large, comfortable leather recliner with ottoman that faces a 17” monitor in a corner style computer armoire. I offer clients a soft blanket. I also have neck pillows and small back support pillows available. I want to make sure my client has comfortable and pleasant experience. Pre-session evaluations were filled out as

training preparations were made or just at the beginning of the training session. My laptop computer rested upon a wheeled wood and metal cart that I kept located behind and to one side of the chair used for training.

Having first explained the process and obtaining permission to touch the person's head and ears, EEG paste was applied to the two sensors and they were attached to the scalp of the client at C-3 and C-4 location of the universal 10-20 grid system for EEG sensor placement (Jasper, 1958). A grounding clip and a reference clip, also coated with EEG paste, were attached to each ear, grounds on the bottom and references at the top, avoiding pulse points.

Thirty second baseline readings of EEG activity were recorded before each training session began and after each training session ended. The baseline readings were taken with eyes open for fifteen seconds and eyes gently closed and kept closed for fifteen seconds. Some clients liked to see the comparison of the lines of the pre and post cross correlation of the auto correlation analysis at the end of the training session.

The training experience of ZIN NFT remains quite different than other forms of NFT. The client receives the instruction to "just let it happen." The client does not have to pay attention or make any conscious effort during training. As a practitioner, I regulate the amount of feedback received. In keeping with principals of non-linear dynamical systems, where a single bit can have great influence, using a 'less is more' practice prevails. The auditory feedback skips are regulated to occur as minimally noticeable.

Following the end of the training session, I removed the sensors and clips from the person's scalp and ears. I asked how they felt at that time.

Instrumentation

The equipment used for the neurofeedback training included KeyData, Toshiba and Acer laptops meeting Zengar Institute specifications, with 17" external monitors by View Sonic or MicroTek for the graphic display. Cyber Acoustics external subwoofer and speakers were used for auxiliary audio amplification. The ProComp Infiniti encoder system is manufactured by Thought Technology, Montreal, Ontario, Canada. Clips, sensor cups and leads were provided by IMA, Florida, USA. D.O Weaver produced the Ten20 Conductive EEG paste used. NeuroCARE Professional, now called NeurOptimal computer software was developed by Valdeane Brown, Ph.D. and Susan Cheshire Brown, Ph.D. of Zengar Institute, Victoria, B.C., Canada. G-force, the graphic display, was provided by Sound Spectrum. Clients either brought their own preferred music or listened to music provided.

The ProComp Infiniti encoder works as a non-invasive physiological data acquisition device. Data is collected at 256 samples per second from each of 2 standard sensor cups, placed at C-3 and C-4 locations of the universal 10-20 grid system for scalp sensor placement as per ZIN system protocols. Grounding and reference clips are placed on each ear avoiding pulse points. Ten20 EEG paste used on the sensors and clips provides signal conductivity. Data obtained from the sensors, flows through wires connected to and through the preamps to the encoder, then via fiber optic cable to a ProComp interface connected to a Keyspan

cable connected to the computer using a USB port. (This system has recently been replaced with Zengar Institute's own Zamp system, eliminating the preamps, encoder, fiber optic cable, ProComp interface and Keyspan.) Data is received and processed through the NCP/NO software enabling analysis, training and display.

ZIN Neurofeedback Training

ZIN enables comprehensive training within sixteen (16) floating target bins, eight (8) on each side of the brain, for groups of brainwaves between .001-42 hertz, with options of up training through 62 hertz. Targeting specific groups of brainwaves that work together, the mathematically formulated target bins float with the fluctuating amplitude of the individual's brainwaves. As part of the comprehensiveness, the program also trains for synchrony and coherence across the two sides of the brain. ZIN NFT software requires no diagnostic assessment, site specific sensor placement, or practitioner determined manipulation of brainwave activity through augmentation and inhibition. The ZIN program application enables the person's brain and CNS to train toward its own self-determined optimal functioning, comprehensively. This process occurs via the monitoring and provision of information about emerging turbulence of the brain's electrical activity to itself through the auditory and visual feedback. The software program interfaces brainwave activity with music and graphic display to provide feedback in the form of a minimally noticeable pause or skip in the music and a change in the graphic. It is those barely noticeable skips in the music that complete the feedback loop providing the brain and CNS with the information needed to optimize functioning through the course of training and beyond.

The ZIN software went through several updates and upgrades during the space-time span of the NFT of the client-subjects, however the basic use pattern did not change. ZIN versions 1.86 through 1.98 were used. NFT sessions lasted 35 to 45 minutes within standard 1 hour appointments. The default protocol of version 1.86 did not have phases. Although default protocols existed, “when in doubt, default it out,” I did not consistently subscribe to any particular default protocol in facilitating the training, but rather “danced” with the participant throughout each training. The “dance” involved making sure the client got a bit of feedback from each of the target boxes throughout the training session. Beginning with version 1.9, four stages of ZIN training were introduced, Zen 1-4, which can be described in metaphor to aerobic physical workouts as warm-up, stretch, aerobics and cool-down. Once the 4 phase protocol was introduced in versions 1.9 through 1.98, participants received training in each of the 4 phases, but again as facilitator I “danced” with the participant intuitively sensing the amount of time to train in each phase. Typical sessions varied anywhere from 5-10 minutes in Zen 1; 7-15 minutes in Zen 2; 5-15 minutes in Zen 3 and 7-10 minutes in Zen 4. Default recommended times within each phase have changed throughout updates and upgrades. The default timings for each phase as they currently exist (version 1.98.12) for the first four sessions and for a regular and extended session are shown on the table below. These timing protocols were used ninety-five percent of the time since their inception.

Zengar 1.98.12 NeuroOptimal Default Sessions				
	Zen 1	Zen 2	Zen 3	Zen 4
Initial Session	5 mins.	5 mins.	none	5 mins.
Second Session	10 mins.	10 mins.	none	10 mins.
Third Session	7 mins.	10 mins.	5 mins.	8 mins.
Fourth Session	5 mins.	10 mins.	10 mins.	8 mins.
Regular Session	5 mins.	7 mins.	14 mins.	10 mins.
Extended Session	7 mins.	10 mins.	20 mins.	10 mins.

That described above seems to me quite typical of the psychotherapeutic process. Because I am constantly changing and evolving, as are my clients, my interaction with clients is “not the same” at each meeting. My philosophic and theoretical approach to psychotherapy has been largely formed out of developmental theory across the lifespan, significant psychological schools of thought, non-aristotelian systems (now identified as non-linear dynamical systems), and my firm belief in the extraordinary drive, power and capacity of the human mind/body/spirit to grow and strive to attain its potential best throughout the lifespan.

Some clients like to talk during training, so sometimes psychotherapy occurs during training. Some clients report that they like that I am not looking at them while we talk, they find expressing their thoughts/feelings easier when they do not monitor my reactions. Sometimes psychotherapy is completely co-mingled with NFT. I try to meet my clients’ preferences. Usually, for therapy we converse face to face, sitting on the couch and chairs. When neurofeedback occurs, we usually speak together before and after the training session. Sessions typically last for one hour with 35-40 minutes of actual Neurofeedback training.

When I initially meet a client, I make every effort to determine historically what has worked for them and what hasn’t; what has been tried and the results of

those efforts. In other words I try to meet them where they are and create an alliance to work toward desired aims. Most of the time now, I do ask clients to consider NFT as part of our work together because my experience indicates a more permanent and profound transformation occurs. Since this is not a study of how or if ZIN “works,” this information is offered as clarification and to highlight the limitations of replication.

Trustworthiness

Steps to insure the credibility, dependability and possible transferability (Bloomberg & Volpe, 2008) of this research are reviewed in this section. I have provided neurofeedback training to clients in my practice since 2004 using only the ZIN NFT systems. I have received NFT fairly regularly over the same time period. I wanted to examine the experience of NFT from the perspective of the people who seek it. This study gave me an opportunity to take space-time to reflect on the perceived effects of NFT from outside of the office and away from my active role as practitioner.

To insure credibility, I have tried to use the language of my clients to express their experiences as reported at the time in the case notes. I received commentary input and feedback from two colleagues, and their assistance in testing for inter-rater reliability. I presented both the findings of the commonalities and differences through thematic capture and individual case story. I strived to present the generalizable for the pursuit of science and the particular for the pursuit and edification of professional work (Stake, 2006). Multiple sources of information were used. For the findings, interviewees were asked to

check for accuracy of intended meaning of quotations and for meaning, interpretation and portrayal of case information.

The study outlines the procedures and processes of research, and its appendices include most of the data collected, as organized for analysis. The data for this study was collected out of the case files and from clients in my practice where I serve under state licensure as a mental health counselor. From my experience and research, I believe the findings within this study have high potential for transferability for the use of ZIN NFT in multiple settings including educational, professional and private homes, to the benefit of trainees.

Chapter 4: Findings

Introduction

The purpose of this study was to explore, discover and describe how clients perceived the effects of ZIN NFT received in the context of psychotherapy. I used a qualitative multiple case study format because it allowed me to discover, gain greater understanding and describe the experience of clients receiving ZIN's comprehensive non-linear system-model of NFT collectively and individually. This approach allowed me to explore the effects as reported by clients while they were receiving training, and to provide other perspectives. The information gained from this research will add to the fund of knowledge about the perceived effects of ZIN NFT as reported by the client. This chapter presents the findings of my research organized the following way. First, I present some generalized introductory information about the study findings. Secondly I present the thematic distillations including commonalities and differences pertaining to each theme as the findings emerged from the analysis, with illustrative information or quotations from the question responses, case notes or interviews. Four individual case studies are presented to provide the reader with an in-depth sense of a few individuals' experiences, highlighting their similarities and the unique variations of effects reported overall, throughout the NFT experience. The chapter closes with a summary of findings.

Introduction to Findings

The research began by the selection of twenty-nine case files from which the verbatim responses to the pre-session evaluation question, *“Have you noticed any effects since your last visit that you think might be related to your training?”* were extracted. Responses from two additional case files were later added making the sample size thirty-one (31). The client-subjects ranged in age from 13 months to 81 years of age, and included fifteen (15) males and sixteen (16) females. The number of NFT sessions received per client ranged from a minimum of six (6) to a maximum of one hundred eighteen (118). Further findings specific to the range and number of training sessions represented in the study are presented following the thematic findings section.

Eleven (11) clients reported a positive effect to their initial NFT session either immediately or at the next session. Using only the verbatim responses to the pre-session question and using phenomenological analytical processes, twenty-three themes of change emerged. Ranked from highest to lowest based on the number of meaning units per theme, the most often identified effects reported were related to

- 1) Sleep (Sleep)
- 2) Anxiousness and Calming (Anx/Calm)
- 3) Self-Awareness (S/Aw)
- 4) Feeling Good/Sense of Well-being (IFG)
- 5) Mood changes (Mood)
- 6) Dreams (DRMS)

- 7) Coping and Letting Go (Cope)
- 8) Functional Changes and Differences Noticed (Func)
- 9) Physical Health (Phys)
- 10) Energy level (NRG) and Relaxed (Relax) tied

Thematic Findings

Thematic findings are presented as listed above, in order of theme dominance, but including findings from all twenty-three thematic pods. Appendix G holds a table showing the number of meaning units reported by theme heading compared to the occurrence by session. Appendix E contains a table showing the number of responses per client per theme and Appendix F contains a table showing the responses per client per theme by session number in which they occurred.

Sleep (Sleep) Ranking: 1st

Seventy-three (73) notations describing sleep quality were made between sessions 1-21, only five of these having description of a night or two of not sleeping very well. Clients reported “slept well, better than in months, woke up wide awake,” “sleep improved: better than in a long time, “sleeping well,” “sleeping better,” “sleep improving,” “able to fall asleep and sleep well,” “sleep more soundly,” “restful sleep,” “sleep continues to be good,” and “no trouble sleeping.” Ted, Client 16, a 57 year old man whose primary issues were related to sleep, and who commuted to and from work each day by ferry reported after his 15th session, “sleep improving: more restful, didn’t nap to or from Seattle on the boat.” BJ, Client 22, an 81 year old woman who wanted NFT to help with her

Parkinson's disease reported improved quality of sleep after her 4th and 6th sessions and then reported some feeling of restlessness in the night after each of the 7th and 9th sessions, although she also reported that she felt fine and rested when she awoke the next morning. Other descriptors in reference to disrupted sleep included: "that night too jazzed up and couldn't get to sleep until midnight, then slept really hard and it was difficult to get up," "only 1 incident of waking up and crying and calmed quickly," and "didn't sleep very well." Client 25, Brie, a 21 year old college student reported after her 10th session,

"Last night I didn't sleep very well. I kept waking up and it made me realize how much my sleep had changed because that was the first time in a long time that had happened."

Of the seventeen clients reporting sleep issues at their initial meeting, only two did not specifically report sleep improvements related to their training, either in the pre-session evaluation or within their case notes. Stated another way, 88% of clients reporting sleep problems reported improved sleep. Of the thirty-one clients, seventeen reported sleep problems (55%), but a total of twenty-three (74%) reported improved qualities of sleep. Appendix () identifies which clients reported sleep problems and the reports of sleep effects identified by the session number.

Anxiousness and Calming (Anx/Calm) Ranking: 2nd

Twenty-seven clients made sixty-six (66) reports of feeling calmer and having less anxiety. Seventeen clients had specifically identified issues associated with anxiety and anxiousness. Four reported beginning to feel change in the first session: "feel calmer," "felt more peaceful," "felt calm for the rest of the day," and

“felt mind quieting.” Client 1, Su, reported feeling “more anxious this week than in a long time,” after her second session. This was the only report of increased anxiety. 86% (fifty-seven [57] reports) of changes in regard to anxiety issues were made between the first and sixteenth sessions. Common descriptor phrases included: “feel calmer,” “feeling calmer,” “feeling calmer in general,” “less anxious,” and “less anxiety.” Other expressive phrases included: “less fidgety,” “not so all over the map,” “more settled,” “sense of calm and peace, quieter, less frantic,” “don’t feel as tight, less tense,” and “no longer hyper-vigilant.” Over the course of training clients reported diminishment and elimination of anxiety and panic attacks. Client 11, Jak, commented at his last [6th] session, that it was “weird how the anxiety just went away.” Su, mentioned above, reported that her lifelong, always constant feelings of fear disappeared after her 14th session.

Kari, Client 9, had come for training due to a diagnosis of Obsessive-Compulsive Disorder, anxiety and panic attacks. She first noticed a lessening of her anxiety in a conversation with her husband after the third session. She reported she felt she was beginning to let go of her fear and, as a result, also letting go of her anxiety and her need to control (session 5.) After her 6th session, she reported proudly, she was able to drive home using an alternate route without panicking. At her 13th session, Kari reported, “not noticing anxiety as much, moments only and not so overwhelmingly physical.” By session 15, Kari was only feeling “moments of anxiety,” and I didn’t see her for the next six months. When she returned she came for two sessions in one week and then three sessions two weeks apart. She had wanted to have a baby but had been too afraid and

unable to get pregnant. She was pregnant and feeling anxious about the impending birth, but just a little, a level 3 on the 1-10 scale, 10 being the highest or most, but she didn't like the feeling and didn't want to pass her anxiety on to her baby. At her final session (21) she came to show her baby and to have another session before being relocated back to Hawaii with her Navy husband. She said she felt happy and at ease within herself.

Self Awareness (S/Aw) Ranking 3rd

Effects attributed to NFT relating to self awareness were reported from the after the 2nd session, “had a spiritual revelation,” through the 118th, “asked Mom to make appt; know I needed it, instead of everything being easy, I was starting to struggle and get in trouble.” The fifty-nine responses under this heading were noted by twenty-two of the clients. Increased self awareness included becoming more aware of feelings, “have been realizing the last couple of days how much the anxiety affects my mood – didn't realize that before,” “noticing how anxiety feels...,” “Feel less hyper,” “more aware, feeling my feelings,” “increased self confidence,” and “there's been an emotional shift.” Personal insights about changes taking place, like “breaking old patterns,” “letting go of my attachment to chaos and drama,” “more comfortable with self honesty,” “giving myself permission to transform, letting go of trauma and loss,” and “letting go of old tapes...” were reported. Notice of symptoms falling away was taken: “compulsions less active: not obsessing, tics diminished,” “OCD stuff receding, rituals, less sensitive to taste and texture,” “really not feeling any of the ADHD stuff!” and “not slipping back between sessions, all symptoms vastly diminished.”

There were reports of feeling “hypersensitive to light, sound & touch,” and “different levels of consciousness.” One client reported at her last session, “I’ve changed, I look at things differently, respond differently.”

Feeling Good/Sense of Well-being (IFG) Ranking: 4th

Twenty-four of thirty-one clients reported fifty-three effects of feeling good distributed in a wave like formation from sessions 1 through 90 (see Appendix G, under the heading IFG). The descriptors used to report effects within this theme were strikingly similar. Nineteen reports contained the following language: “feel good,” “feeling good,” or “feeling really good.” Other characteristic responses included, “feeling better,” “feel good, more like myself,” “feeling better all around,” “like the way I’m feeling,” “getting better all the time,” “feeling good, mentally and emotionally,” “generally feeling good,” and “so much better over all.” A specific re-researching of the case files confirmed these reported effects indicated more than an improvement in mood and were reflective of an improved sense of well-being.

Mood Changes (Mood) Ranking: 5th

Twenty-two of thirty-one clients reported depression and mood disturbance as problematic when they came in initially seeking training. Fifty reports of effects associated with mood were made by twenty-four clients, 82% of reports of change occurring between sessions 2 and 17. Descriptions in this category began with “felt better for awhile,” “I had some good days,” “feeling happier,” “crying less,” “mood improved,” and “not as moody.” Descriptions progressed to “feeling joy and elation,” “mood, only sad occasionally now,” “no

longer depressed,” “depression has lifted,” “not depressed, happy,” and “mostly good mood” and “happier generally and mood swings are less noticeable.” Jen, Client 14, who told of a difficult and complicated history of mood disturbance, stated “the biggest difference I’ve noticed so far is in my mood, I’m feeling more the way I’m supposed to feel,” and this without supportive medication.

Dreams (Drms) Ranking: 6th

The dreams category provided an open ended theme. Seventeen of the thirty-one clients made report of a dream effect. Dream reports were varied from “dreaming,” and “dreaming, and remembering my dreams,” as a change to dreams being described as weird, bizarre, odd, unpleasant or strange. Clients who were troubled by bad dreams and nightmares noted a diminishment of occurrence. Reports of dreams and change in dreaming quality were reported beginning with the third session. 73% or twenty-four reports of dream effects occurred from the 3rd to 13th session. Two clients reported eleven of the total of thirty-three effects. No one mentioned dreams as an effect after the 26th session.

Coping and Letting Go (Cope) Ranking: 7th

This theme specifically addresses flexibility. Changes were reported in the increased ability to cope, being able respond rather than react, and to “deal with things as they came up,” with less frustration, worry, stress. Client 30, Don said his “oh-well factor had increased,” and after his twenty-first session he reported that he “hadn’t had a meltdown or flown off the handle.” Clients reported not staying upset by things as long, and not letting things get to them the way they used to. Reports of changes where the words “letting go” were used

referred to letting go of old issues as well as not staying upset as long, “even when there is a bump, I can handle it calmly without getting upset, I just deal with it and go on,” reported Jon after his twenty-first session. Reports of changes in ability to cope and letting go were evenly distributed throughout sessions 1 to 40.

Functional Changes and Differences Noticed (Func) Ranking: 8th

This category highlights reported changes noticed in day to day functioning, differences noticed along the way of training that “let me know the NFT was helping me,” said Don, Client 30. Twenty clients reported thirty-one changes or differences. The differences noticed were diverse and ranged from the general to specific and reflected the individual client. General statements included: “making better choices,” “more productive in less time,” “better able to express my thoughts,” “taking breaks,” and “able to do more activities.” Some of the specific differences noted were: “reading again,” “was able to awaken without my alarm, get work accomplished,” “started working out,” “easier to drive,” “played a whole round of golf without smoking, putting game was good,” “less food cravings,” and “spent all day out in the yard.” Ken, Client 12, reported his “golf score was lower” after his 12th session and then asked if the NFT could have had that effect.

Physical Health (Phys) Ranking 9th

Ten clients made twenty-nine reports of differences noticed in their physical health beginning in session 1 and through session 98. Three of these were clients who had not mentioned any physical discomforts as issues. Col reported he had not experienced any asthma symptoms in the fall. Mel, client 31,

made seven notations of reduced or absence of fibromyalgia pain from session 1 through 23. BJ experienced diminished aches, pains and hand trembling attributed to her Parkinson's disease. Other areas of noticed improvement of physical health included weight loss, decrease and lack of headaches, increased appetite and (good) weight gain, and decrease of vertigo and hot flashes. Ame's PMS went away. Nan and Dan, who reported addiction problems were both able to maintain sobriety (their notations in regard to sobriety maintenance were credited to Self-awareness and Life Style).

Relaxed (Relax) Ranking 10th tied with NRG

This theme emerged because clients' use of the descriptor "relaxed" indicated more a state of being, of having experienced the relaxation response. Clients reported "felt more relaxed for awhile," "feel so much more relaxed than when I came in," "this is relaxing," "more relaxed," "feeling mellower: more grounded," and "have felt really good and relaxed the last few days." One client who overworked and rarely took a break, reported taking a day off, reading a book and taking a nap. Fourteen clients made twenty-two responses of effects related to relaxing, nineteen of which were made in reference to sessions 1 to 8.

Energy level (NRG) Ranking: 10th

Twelve clients made twenty-three reports of changes in energy levels. Responses within this theme included "getting more done," feeling productive," "not so tired," "more invigorated, less tired" "more energized," "feel strong," and "feel I can accomplish more." Client 16, Ed, whose primary issue was sleep, began reporting improved quality of sleep in the 3rd session, and at the 5th session

reported with surprise and delight that he had a very different experience, he felt energized. Notable under this heading were the six reports of Client 22, BJ, an 81 year old woman diagnosed with Parkinson's disease. She reported feeling much better physically and at the 5th session reported she had taken walks "the last 3 of 4 days." She reported that she had "out-walked my husband," [6th session], felt "great physically, continue to out-walk my husband," [10th session], that she was "maybe over doing it a bit," [17th session], and had taken "two walks yesterday," [20th session]. Mel, Client 31, reported at her 24th session, "have gotten more done in the last few months than I'd done in the last 3 years!"

Medication Reduction (Med) Ranking: 11th

This thematic heading applied only to the thirteen clients who came into training reporting taking prescription psychotropic medications. Reductions and discontinuations were reported as occurring from the 3rd session through the 42nd session. Six of eleven clients who reported taking psychotropic medications, reported discontinuing all psychotropic medications. Reports included descriptors concerning medication usage as being "reduced," "stopped," "lowered," and "went off..." Col, Client 5, tried going one day without his medication, Strattera, and reported, "not so good," [after 19th session]. When asked how, he told me, "My brain was going too fast and it was hard to focus." Col went to a half dose after his 30th session and had discontinued after his 42nd session. Two clients reported reduced dosage with positive benefit, and did not report any further reduction. Red reported, "guess I've quit taking Wellbutrin – none for 4 days – I just forgot" [after 3rd session], "Lexapro about every other day – keep forgetting"

[after 13th session], and “have gone without my sleep medication for a week now,” [after 14th session]. At the time of this write-up she rarely used a sleep aid and was taking a minimal dose of Celexa along with her other medications. Bev, Client 27, reported asking her doctor to take her off all medications following her 2nd session. She discontinued all but her Tamoxifen. All clients taking medication had been told that a reduced need for medication may result from their training and that any adjustments or reductions ought not occur until consulting with their physicians.

Mental Processes, Thinking and Memory (MPTM) Ranking 12th

Nine clients reported twenty noticed effects. Nineteen of the noticed differences were reported from the 1st session to the 18th session. Clients reported “clarity,” “thinking more clearly,” “memory improving,” and restored memory described as “remembering...” Thinking more clearly was described as “I can think about it more and think about the answer to make sure it’s correct,” by Reg, a 15 year old diagnosed with ADHD, after his 6th session. Don, a 57 year old man diagnosed as an adult with ADHD, reported after his 32nd session that he “can explain my thought process: able to formulate a plan and articulate it.” Client 26, WH, a 78 year old man who sought out training because he was getting lost while driving and losing his long term memory, described what he noticed in the following sequence: “thinking a little sharper maybe” [after 6th session], “remembering events from childhood” [after 8th session], “didn’t get lost driving in Seattle” [after 10th session], and after the 12th session noted “can sequence chronologically my addresses and schools from birth to going into the Navy.”

Focus and Concentration (FoCo) Ranking: 13th

Fourteen clients reported eighteen effects related to improved concentration and focus; thirteen effects reported between the 2nd and 11th sessions. The most common descriptors used were “focused,” “more focused” and “concentration improved.” Other phrases used included: “able to switch thoughts,” “able to sit for a whole hour on an art project,” “not letting things slide, addressing quickly and directly,” and “better able to get back on track.”

Lifestyle Changes (LS) Ranking: 14th tied with Rlshp

Ten clients reported sixteen changes I judged to qualify as lifestyle changes based on the effect reported and on my understanding of the person reporting and the course of their training. These changes reflect those for which there was intentional hope and unexpected ones. Dan, Client 24, reported, “decided to start my own company,” and that he had “no urges to smoke or drink.” Nan, Client 23 remained clean and sober, continued to work her AA and SA programs and eventually went back to school. Jak reported “haven’t smoked any pot,” and “going back to school next quarter” at his final trainings (5th and 6th). Four years later, in interview, Jak told me,

“I never have had any problems since, finished school – met a real nice girl the spring after I went back – got married. We’ve joined the Peace Corps – picked up the language really easily, going in about 6 wks – pretty isolated place but feel confident we may be able to help. Really want to make sure we understand, don’t want to go in as expert, ugly American...just have felt really good ever since – like I can handle most anything that might come along.”

Relationship Changes (Rlshp) Ranking 14th tied with LS

Relationship changes described better communications, “able to talk to my husband in a way that worked,” and “better able to carry on a normal conversation and really communicate.” Descriptors identified changes in personal behavior regarding relationships, such as these: “marveling at how I am dealing with people,” “socializing more,” “more gregarious,” and “changing how I interact and relate to people.” Clients also described “reassessing relationships,” “being interested in making healthy friendships,” and being “more aware of dysfunctional dynamics in interactions with coworkers and family,” as characteristics of relationship changes. This theme yielded sixteen responses from ten clients across twenty-seven sessions.

School (Sch) Ranking 15th

Of the seven students among the sample, five reported effects on their schoolwork perceived as resulting from NFT. Reg, a 15 year old young man who had been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) when he was six years old, reported being “faster answering questions in class,” “math easier,” and getting “math homework done before out of class today!” Dee, a 10 year girl who struggled with self control, reported, “had a good week at school,” and that her behavior “card has been only green or yellow at school.” Brie described her college finals experience in this way:

“finals were much easier than midterms: not so stressed out, just did it – really a big difference – didn’t go through the thinking “oh dear, I’m so stressed” not as intense, almost could write it off.”

Mick, another 15 year old young man struggling with ADHD symptoms and multiple difficulties of learning, went from nearly failing to a 3.3 GPA in five months of training. He first noticed a change in his ability to speak and use his words, “say, there is one thing, I am speaking better: ...more articulate, better vocabulary,” [4th session]. As training continued, Mick reported feeling “less hyper,” [5th session], “calmer generally,” [6th session], and less anxious. He reported feeling more sure of himself, with better mood and improved concentration [9th session], and at the 15th session reported “Really not feeling any of the ADHD stuff.” Mick made the following entries specific to school on the pre-session evaluations: “math improved, much better at writing,” [19th session] “school going smoothly, everything going smoothly,” [20th session], and at the 25th session, “schoolwork and homework going better.”

At his 25th session he repeated, “*really* don’t feel ADHD anymore,” and had completely stopped using medication. Mick proudly reported his much improved grade point average at his final session [27th session] and that his “ability to read and focus (was) very improved.”

Motivation (Mot) Ranking 16th

Eight clients noticed a total of fourteen differences in their motivation, while only two specifically hoped for a change in this area. Client 17, Mat, reported after session 3 that he “was motivated to be motivated,” and after the 9th session reported his “motivation up but still not quite up to where I want it to be.” Typical commentary under this theme included: “feeling more motivated,” and

“more motivated.” Other increased motivational effects attributed to the training were: “thinking about the future,” “thinking about going back to work,” “considering getting my real estate license,” and “have good ambition.”

Anger and Temper (Ang) - Ranking: 17th

Nine clients reported thirteen (13) changes in anger and temper. Four of these clients had not mentioned anger or temper being a problem for them. The majority of changes were noticed between the fifth and tenth sessions. Effects reported included, “something about my temper is changing,” “[having] a softer demeanor in dealing with people,” “less anger,” “less flare-ups,” “temper calmer,” “not so irritable,” “nicer- not so grouchy,” “releasing anger,” “anger mostly gone.” Dan, client 24, reported his “pent up anger and frustration gone” after the sixth session. He had reported being depressed and angry, “really miserable for 2 or 3 years.”

Organization (Org) Ranking 18th tied with (Ast) and (OPN)

Five of ten noted effects in this theme were made by Client 15, Jon, a 45 year old business owner who described his greatest ADHD issues as disorganization, losing things, forgetting and timeliness. He described his perception of the effects of NFT helping him organize in the following progression: 5th session: “less over scheduling,” 7th session: “less cluttered,” 10th session: “not feeling as scattered,” 19th session: “organizing: designed a system for tracking my work and work orders,” and 27th session: “less scattered, keeping things more orderly and together.”

Other People Notice (OPN) Ranking 18th tied with (Ast) and (Org)

Eight clients made ten reports of other people noticing change in them over the course of their training. Aside from a general report that a family member had noticed a change, the following specific comments were offered. Red reported “husband says I am walking differently and carrying myself differently.” Don reported “my wife thanks you for the new me, says I’m not barking at her.” Mick reported his mother noticing “I’m acting more mature.” Jon reported “My guys [employees] say I’m not getting upset or angry like I used to, and I laugh a lot more.”

Assertiveness (Ast) Ranking: 18th tied with ORG and OPN

Eight clients reported ten changes in being able to assert themselves. Changes reported related to feeling assertive and being able to act assertively by standing up for oneself, “not being a doormat trying to please everyone,” and being able to set boundaries with others. “I feel assertive: I dealt with an incident proportionally and as needed,” “less tolerant of over-extending myself,” and “competitive spirit is up,” comprise some descriptors in this category. Client 29, Red, expressed surprise that she “wasn’t apologizing all the time for everything.” Su expressed surprise she was able to address a problem with her hairdresser, something she wouldn’t have done before.

Non-Specific Awareness of Change (N-S) Ranking: 19th

The responses contained in this pod could have been enfolded into other thematic pods because some seemed to indicate change as inclusive to the other

meaning units in a particular session pre-evaluation, but they also seemed to indicate a separate, more global awareness of change. Seven clients made nine notations. Descriptors included: “something is different, can’t quite tell what it is,” “nothing specific but getting better in general,” “not just surviving anymore but not yet to thriving,” and “since I’ve been coming here my life is really different.”

Sessions Findings

Clients were encouraged to come to training with a minimum frequency of twice weekly for the first ten sessions. After the first ten sessions, clients were told they could continue at twice weekly if they chose, or could decrease to once weekly. As the client feels the training “holding,” the space-time between trainings expands. There were no set amount of training sessions recommended beyond the first ten. Clients were told they would know when it was right for them to discontinue and were told they were welcome to come back at any time for another series or a “tune-up.”

The number of NFT sessions received by clients in this study was as few as six and as many as 118. Two clients, Jak and BH discontinued after six sessions, with presenting problems resolved. Follow up confirmed all remained well for both of these clients four years post training. These were exceptional results. Clients respond to training at varying rates. Some clients choose to continue indefinitely, coming in periodically for “tune-ups.” The mean number of NFT sessions received in this research was thirty-one (31). 45% of clients

received 16-30 sessions. Appendix () summarizes session data and shows the space-time span for each client's course of training.

Selected Client Stories

The following individual cases are presented to further explain and describe how the effects of NFT were perceived as impacting the quality of life of the individual interacting within our world (organisms-as-a-whole-interacting-in-environments through space-time).

BH: 13 months old: 6 sessions over 3 weeks

BH's Mom described BH as awakening every time from nap or at night, in terror and screaming, freezing and stiffening like he is going into a seizure and can not be comforted. This goes on for fifteen to thirty minutes, once in a while it only lasts a couple of minutes. When he wakes up at night, he wakes up screaming and it doesn't seem like he's awake or asleep..."

"Labor lasted eighty hours. His head got stuck in the birth canal and the cord was wrapped around his neck. Finally he was born caesarean. He weighed nine pounds, eight ounces. Meconium was present in the amniotic fluid but luckily the lungs were clear. It's been like this ever since he was born. And he has, like temper tantrums and he screams and screams. Nothing works."

BH's Mom and I imagined what the birth experience might have been like from the baby's perspective, after its experience of the womb and the interactive nature of pregnancy between Mother and Baby. We imagined what eighty hours

might seem like to a newly emergent survival instinct and consciousness. We imagined that each waking up experience might represent re-enactment of those moments in the birth process when the baby was experiencing something new, strange, and quite probably scary and then terrifying, possibly feeling strangled, and trapped in the darkness.

I had not provided NFT to someone so young before, but I could not think of any reason not to try. For the first session, I decided to try just three (3) minutes training in Zengar phases 1, 2 and 4. As I recall, my thinking included:

1. reflection on the rapid neuronal growth taking place during this developmental period,
2. secure knowledge of the safety of the Zengar system that trained comprehensively across brainwave types,
3. the baby's own brainwaves would determine the training, and
4. he might not tolerate the sensors and clips attached to his head.

BH sat on his Mom's lap and I applied the sensors at C-3 and C-4 on his head and the grounds and references clips to his ears. BH was distracted from touching the wires by providing him different objects to hold and was tolerant and fairly still throughout the training.

At the second session Mom reported that he seemed to be sleeping better, but that his temper tantrums were the same. For the second and subsequent sessions I provided training in all four Zengar phases, at about three (3) minutes each. At the third session BH's Mom reported that he had slept through the night

for the four nights since the last training and when he awakened there had been no terrors. He had actually awakened happy from one nap.

At the fourth session, Mom reported that BH was having fewer tantrums and was easier to calm down. He had awakened one time, one night screaming, but had been more easily consoled and calmed. After the fifth session, Mom reported BH had been fretful for two days and “freaks out if I do so much as move or to get out of bed.” Mom shared that Grandma had babysat the day before and BH had awakened in terror but calmed in about five minutes rather than the normal thirty-five to forty minutes. After the sixth training, BH’s Mom reported he had been continuing to do well, awakening without any problems, having very few temper tantrums and seemed to have better moods and be a much happier baby all round.

Ame, 31 years old: 21 sessions over 6 months plus tune-ups

Ame was 31 years old when she came in for therapy and NFT. She had moved back to the NW about six months prior from Tennessee in the midst of a nasty divorce. The divorce was not yet final, as a settlement had not been reached. They hadn't had children together but Ame had mothered and cared deeply for his children as her own. She was mourning that loss as well. She had walked away with just her clothes and a car. Ame expressed that she had thought for the longest time that by age 30 she would be happily married and raising her own children. She was currently enrolled in massage school and looking forward to opening a private practice locally. She was living back with her parents and that was hard for many reasons. In her history, Ame shared she had taken on responsibilities and jobs beyond her years early on and had experienced a lot of loss through death in her youth and adolescence. She strived for competency and achievement as well as perfection in everything she did. She was sensitive to the needs of others and tried to fulfill whatever perceived need or role presented. Her self described issues included recurrent depressions and feeling angry generally. She felt she put on a good façade. She said anger sometimes got the better of her and she had really angry outbursts. She described feelings of "hyperness" and feeling generally fidgety most of the time inside and out. She described herself as rigid in habits and thinking, with compulsive tendencies that helped her to feel in control of herself. She described having reading dyslexia which manifested as

inverted letters that had also severely impacted her ability to spell and write. She had poor reading comprehension but loved to read for pleasure and had developed effective coping skills for reading comprehension and for writing. She had tried counseling two other times throughout her life since adolescence but didn't feel like she had benefitted from it because she hadn't felt heard or listened to and the chairs were uncomfortable. She had tried Zoloft and Celexa for depression but didn't feel like they helped her depression or anger. She had experienced too many side effects. She wasn't taking medications now. Alcohol was not a problem and she enjoyed social drinking, going out with friends a couple times a month. She said she did not use pot or any other drugs. Ame trained 21 times over a six month period and had occasionally come back for "tune-ups," until she moved away.

Ame hadn't mentioned any sleep issues or sleep as being problematic but she reported after her second NFT, "that night too jazzed up and couldn't get to sleep until midnight, then slept really hard and it was difficult to get up; next day really good, and that night had a great sleep." At her fourth session Ame remarked that she'd had a great sleep the night before. In her case notes, I noted Ame commented periodically on the quality of her sleep as "uneasy," "disrupted by environmental factors," and "interrupted by vivid dreams." At her twelfth session, in response to "Have you noticed..." Ame said, her dreams were returning to what was normal for her, "dreams have not been as vivid or as apparent as they used to be;" and she was awakening "not as exhausted." She felt she'd been working out a lot of her stuff during sleep. Then she made no further

mention of sleep until she experienced a night of “restless sleep.” When I asked about sleep issues and sleep quality, Ame said she’d had trouble going to sleep generally and didn’t sleep very soundly. She often woke up not feeling rested, but sleep quality had improved so much that the fact that she’d had a restless sleep was now out of the norm. She hadn’t thought to mention sleep as an issue at the beginning but was aware of how dramatically different she felt when she was sleeping better and attributed that change to the NFT.

At the fifteenth session Ame reported, “less food cravings, no PMS symptoms and I had an insight that I am being able to listen without needing to fix it or take responsibility for it.” These were changes that Ame felt could not be attributed to anything other than the NFT and were changes occurring despite current events. She had passed her state massage licensing exam, but now had up to a ten week wait for the license to come through from the state capital before she could start working; everything else was in place. She still wasn’t divorced, now just over a year since the split. She felt frustrated, sad and stressed out, tired of waiting, mourning the loss of a third of her life. She was still living with her parents and working at a low paying job she didn’t like very much. “I feel like a horse stuck in the starting gate waiting for the starting gun.” She felt ready to find love and live again, on her own. In the case notes from the seventeenth to the twenty-first session Ame expressed feeling good, “peacefully excited,” optimistic, happier and “most days comfortable with myself.”

At the twenty-first session, Ame wrote this in response to *Have you noticed any effects since your last visit that you think might be related to your*

training? “So lack of anxiety.” She gave this example of how different she felt and how differently she was responding to life:

“The car broke down the other day and I started hearing Steve’s (soon to be ex-husband) tapes in my head. I got angry, cried, cussed and felt afraid. I had this feeling like only part of me was living it, 40% experienced and 60% observational. Figured out what I needed to do to fix it; did it and got through it. When I went to work at 3 pm, *I was fine* – it was a surprise, feeling so in control from within, aware and making choices of how to respond.”

In interview two years later Ame shared the following:

“I was so angry and so tired of being pissed off. I used to get so spun up by external circumstances and I would respond with anger and violence. People have less power over me now. Even when things are said to me that *are* offensive, I am less offended, where it used to just consume me. My Mom was a big part of my being spun up thing. Now she hasn’t the power. Things she says register, but don’t offend so much. It’s how she is, but she’s not my responsibility. ...Events like that now register as ‘no big deal.’ I have better boundaries than I’ve ever had. I’m not responsible for other people’s feelings. Now I feel like I enjoy my emotions more, whatever I am feeling, I feel it and don’t feel like I need to be socially acceptable in what I’m feeling. I don’t feel inhibited about laughing out loud.”

“It would have been so easy for me to have become one of those angry, bitter divorced women and I like it that I am not bitter about my divorce or the other circumstances I have found myself in. Now I am happy for the experience and know I wouldn’t be who I am without those experiences...”

“Now I sleep more soundly and don’t have trouble getting to sleep...”

“It made a difference in how I studied in school. I was using school as a distraction to avoid what I was feeling. I came to enjoy school and the learning instead of feeling like I had to study, had to be the best, doing it all perfectly.”

“I know it made a difference when we were doing more talk because I knew if I didn’t answer thoughtfully and honestly, I thought it would show up somehow (laughter) but it was nice to see the tangible improvement by seeing the difference on the screen ...that was really rewarding. It gave me confidence to continue on my journey, I knew things were really changing. I feel more grounded and more congruent, I feel like myself, real, not putting on.”

“What surprised me was how NFT impacted my menstrual cycle. I had PMS (Premenstrual Syndrome) so bad: migraines, depression, so much physical and mental pain, and my periods were so erratic. Now I have a period every 28 days and if it’s not marked on the calendar, I’m surprised when it starts.”

Ame remarried and moved about thirty miles and a ferry ride away. She has a successful massage therapy practice, has become a Reiki master and continues to study energetic healing. She reports being happy, happily married and happy with herself, and continuing to grow and evolve. A woman who had worked in the office next to Ame’s, before Ame remarried and moved, remarked, “She exudes such joy and light, you can feel it and just want to be around her....when she left the whole energy of this place changed. I sure miss her!”

Bob, 70 years old; 40 sessions over 19 months, 10 within 10 weeks.

Bob described himself as a 40 year old man in a 70 year old body. He was “very private, too much of a loner, and didn’t like to be alone, but something in my personality pushes people away.” He didn’t smoke, drink, or use any medications, (not even aspirin.) He took supplements as advised by his physician, a noted M.D. devoted to natural methods. He lived by himself and had divorced long ago. He had worked as a real estate appraiser for the past 40 years and had hated the work and wanted out of it for the past 18 years. Part of the trouble was that he didn’t know what he’d do, “I ‘m not passionate about anything, in fact, my motivation is low.” He felt “like a rudderless ship.” He had to continue working. He didn’t have enough money to retire and still be able to continue doing things he wanted like playing golf, pursuing self inquiry, self improvement and alternative health avenues. He had “a life long history of things not going right, if something can go wrong, it will. I’ve always been negative, half empty.” In interview, at fourteen months after completing his initial ten session series, Bob’s sense of humor emerged about his temper, “I’ve always considered myself to be even tempered, always angry.”

He’d had a year long bout of depression about two or three years prior to our initial meeting and had tried St. John’s Wort, but it had an opposite effect and worsened his depression. He had tried counseling before, of a cognitive behavioral type but hadn’t felt much helped. He read a lot of self help literature. He had done some Scientology auditing. There were some troublesome core beliefs, “That I can’t root out.” Bob expressed having faith but was questioning

the strict tenets of his religion. He expressed a desire to feel less negative and more optimistic. He wanted to feel some increase of self-confidence and self-esteem. He also felt he would like to meet someone to share his life with, but she needed to be someone who shared his values and quality of physical health and activity. Bob said he felt most attracted to women around 40 years old, not women his own age, and felt that created a disconnect.

Bob called me the day following his first neurofeedback session. His voice had a joyous tone. He wanted to ask me something.

“I didn’t notice anything at first on leaving my appointment, but then I started to notice something missing. I felt calmer, quieter somehow, and the chatter in my mind was less. I slept really well last night, better than in a very long time and today I feel amazing. Is it possible the neurofeedback training would do that?”

I told him it was possible, not the usual, but sometimes someone would have a similar initial response. At the 2nd session, Bob reported that the further he got from the session, the more the feeling wore off. His sleep had not been as good as the first night but overall it had been better than it had been in a long time. Bob had not mentioned any problems with sleep as being an issue at our initial meeting. At his 4th session, Bob reported that he continued to sleep more soundly. He was experiencing dreams that although he didn’t remember what they were about, he remembered that he had dreamed. He was feeling calmer and his ‘mind chatter’ occurred more intermittently.

At his 5th session, Bob began noticing some changes in his interactions with people and felt his demeanor was softening. His tone of voice was more upbeat. I noticed that he wanted to share more about his life’s journey and I

learned of his harsh childhood. I learned about the different avenues of self discovery he had pursued. The 6th session was dominated by Bob's feelings of excitement about, and his sharing of the changes he was noticing within himself and in his interactions with others. In answer to the question, *Have you noticed any effects since your last visit that you think might be related to your training?* Bob responded, "This process is having some very positive impact. I am much calmer and much happier. I am kind of marveling at how I am dealing with people." He went on to share during session: "My patience has increased. I am mildly and pleasantly surprised at myself and my ability to have empathy. My change is without effort, I am not trying to be different." He gave two examples of frustrations with online purchases where he'd had to follow up with repeated telephone calls. He related he "usually would have gone off at him through the phone. This time I remained calm, I didn't create an enemy and I didn't lose my temper." For the second, "I was so surprised; the return call came within a half an hour! We had a good conversation – took care of the problem while on the phone – my usual way would have been to just be really pissed off right from the start." He also indicated he was feeling "more desire to get out and do things, to go somewhere and do something."

Over the next week, (7th session) Bob said he'd felt less calm and more irritable, frustrated and stressed from his work. He felt pressured, working on re-appraisals of troubled properties whose loan portfolios were in trouble. He shared that when work was difficult, such as when he could not find comparable properties, he felt especially trapped. Then "my inner critic gets busy reminding

me of all the things that have gone wrong and I wake up during the night frustrated and worried.” By the following week (8th session) he was feeling better again. During session, at the end of training, Bob reported having felt different levels of consciousness, felt himself in a semi-hypnotic state and had felt like a part of the music while in training. At session 9, Bob shared that he felt ready to release self-doubt and fear. Having set that intention, Bob reported he later experienced “some random, disturbing thoughts.” Over the following week, his intention came to fruition with a self-realization that he did love himself and he felt himself releasing hate and fear. At the end of his first series of ten sessions, Bob expressed, “It is just very much easier to deal with people and I don’t have to force it – it’s just there – kinda fun – just now a part of my nature that wasn’t there before.”

I was surprised Bob responded so rapidly. I thought his age and the long-term nature of his stated issues would result in a slower response. Also he was coming in weekly, rather than the recommended twice weekly for the first ten sessions. I credit his active life style, his attention to his physical health and in keeping his system unencumbered by alcohol or medications as part of the reason for his good response. While he had used alcohol and prescribed medications earlier in his life, he had never used illegal drugs and he’d not used alcohol, prescription or over the counter medications since he was 45 years old, now over 25 years.

He was presenting quite differently. His countenance had changed. He smiled and had a lighter quality about him, even a sparkle in his eyes. He stood

taller and walked more confidently. His voice tone was warm and pleasant. He wasn't a grouchy, angry man any longer. He revealed a quick and sharp wit.

Bob continued to come in every two to three weeks for tune-ups. He experienced a day here and there where he felt he was slipping back to "the old Bob" but these were short lived. He felt disappointed the changes weren't continuing at the rapid rate and weren't as dramatic. He had some particularly great days following the 13th session where he found himself humming and whistling, something unheard of for him.

After spending the holidays with siblings, Bob fell into a space-time of depression and great discouragement. He felt he'd lived without living and life had passed him by. He felt nothing would ever change and there was nothing to do about it. Despite these feelings, he attended a New Year's Eve party and had an enjoyable time. This period of feeling lowdown lasted about a month. Bob began working with a life coach, on a weekly basis, to further his goals of increased self confidence and self esteem, so he would "get out there and find a soul-mate."

His job remained a thorn in his side but allowed him to continue to pursue his interests. He felt one month was too long to go between NFT sessions, he liked the way he felt when coming in every two or three weeks. His self confidence continued to improve, which he noted by sharing he felt able to speak up and express his opinion without feeling intimidated. And he felt pleased that what he had to say was well received and noticed people responded to him

differently. During our interview, Bob said he was no longer so timid, so intimidated by others.

“I feel more comfortable in a group but I am still an introvert. It can still be difficult for me to initiate conversations, even with those I know, but sometimes it’s just real easy to talk to someone, too, even a stranger.”

Unexpectedly, Bob shot an 80 on a difficult par 76 course. He related he had only played as well one other time, many years ago. He couldn’t remember ever having three birdies in a nine hole stretch before. He attributed this change to the progress he was making with NFT and to the golf training program he was using. He noted he had used his technique in the car on the way to the golf course and was supposed to continue to use it while golfing, but didn’t, and still did quite well.

During the following Christmas holidays, again spent with his siblings, Bob became aware of some family dynamics that led him to further insights and gains in his self esteem and confidence.

In interview, Bob said,

“Well, I can’t remember at what point it was, but somewhere along the line, after some time of using the neurofeedback, I experienced situations where, in the past, when I’d had an immediate, undesirable reaction, I found that in those types of situations I wasn’t reacting as negatively as I had previously. I also experienced having interactions with people where I reacted differently, much more softly, much more calmly and I’d kinda sit there and say to myself, ‘where did that come from?’ It was kinda like watching myself and wondering who this person was that was reacting in a different way than was the norm, what had been the norm. Then there were a couple of situations where I was confronted by difficult situations, where I knew what the other person was feeling and dealing with and I was able to calm them down and still achieve the end that I wanted to achieve;...Oh, very different...usually if someone came at me I would come right back at them, it would deteriorate into an

unpleasant situation very quickly and while it still happens occasionally, I react much more calmly and usually don't let situations deteriorate."

Bob continues to work as an appraiser. He hasn't yet found his soul-mate. His sleep isn't always good. He still has "mind chatter" at times. He continues pursuing other avenues of self-evolution. He still deals with anger, "but not very often, pretty rarely, really." His posture appears relaxed and he seems at ease with himself. He made the following observations about his changes:

"You can have a breakthrough that is pretty eye opening and startling when it happens, and then, it seems to fade from one's memory as it becomes the norm....I think, perhaps what happens, is you start to set a higher standard for yourself. Not consciously, but the change becomes the new norm, so when there is a variation, where the old way reappears, it's more noticeable."

Red: 41 years old; 28 sessions in four months, and continuing

Red was teary, and shaking the first time we met. She described feeling overwhelmed and having a difficult time holding herself together. She said she found herself thinking crazy thoughts while in traffic and her mind was racing. Things were happening, too many things: her house was up for short-sale and she had to find a new place to live that she could afford. She and her husband of 18 years had to declare bankruptcy. She's been diagnosed with Type 2 diabetes and couldn't control it with diet and exercise. Red experienced constant racing thoughts, experiencing high anxiety and constantly worried and was paranoid. Red was unable to sleep and had been prescribed Trazadone. She was also prescribed Lexapro and Wellbutrin for Generalized Anxiety Disorder and Cyclothymic Disorder (a mild form of Bipolar disorder) that had been previously diagnosed. Red also took a blood pressure medication.

Prior to Red seeking therapy she had a falling out with her girlfriends, her sister, her aunt and uncle and was being forced to sell her home. Red expressed her lack of libido and how she thought she was fat, ugly and unattractive. She felt ashamed of her presence; always felt people were looking at her and judging her. She had two teenage daughters, one 15 years old, , and one 17years old. The 17 year old was mostly quiet and content. The 15 year old was coming into her own and was less attentive to Red, passing through a time of argumentative, sarcastic, disrespectful, and selfish behavior.

Red expressed she was sick all the time and had no motivation and was looking for someone to talk to who would listen and validate her. She said she

thought she was manic and crazy and feared she had no control over her life or the voices in her head.

Several other stressors were present. She'd had a difficult childhood, and was estranged from her mother. Red was in fear of her father and felt as if she needed to constantly please him. She felt devastated and ashamed about losing her first home and the bankruptcy. In moving, she had to give away her favorite chocolate Lab, Betsy.

Red worked for the University and commuted 2 hours each way to work everyday. She got up at 4 am and arrived home by 6pm. Red had worked for the University as a program coordinator for nine years. For the past four years she rode in and shared driving responsibilities in a UW vanpool; with her commute she was gone from home over twelve hours a day. Other responsibilities included managing the household, and the family budget. She was the one to take time off for school conferences, doctors' appointments and unexpected family crisis'.

She said she thought she was going crazy and asked if she was going crazy. I suggested we try an initial NFT session right away. The initial NFT lasted just fifteen minutes. Red calmed noticeably during that time and commented, "This is relaxing." We talked a bit more and I reassured her that she wasn't crazy and that in the circumstances she found herself, her feelings seemed pretty normal.

When we next met, five days later, Red said she was feeling better, she'd had some good days and things had smoothed out some. Her countenance seemed much calmer and her voice contained a note of hopefulness. The day before had

been particularly rough, Red shared, however, as she had to talk with her Dad and had a lot of anxiety about that. She'd been avoiding his calls. She really didn't want to talk to him; she really didn't want to tell him about the house. She didn't like the power he held over her. She told of her childhood, her parents divorce, the secrets, the custody battle, her confusion over what was real, and feeling torn and in the middle. Red spoke of multiple troublesome relationships characterized by conflict.

Red's 3rd session occurred five days after the 2nd. She said, "I'm *liking* this! Things are happening!" Despite the continuing chaos in her life, she'd quit taking her Wellbutrin, not on purpose, but she'd forgotten for the past four days, so figured she didn't need it. Her mind wasn't racing like it had been. She became aware that she was able to compartmentalize and let go a bit. She was noticing her anxiety more and noticing how it felt. She described feeling anger and anxiety, "then feeling a bit manic for a little while, then, the feelings would dissipate and I'd feel better again." Her stomach issues were letting up. She was once again waking up willing to get up and go to work.

It was a full week before Red came in for another session. She felt better and attributed her changes to the NFT ("this is amazing!") but couldn't really understand how it could happen, but was glad it did. "I love this, especially when the relaxation feeling comes." She was so pleased that she'd been able to talk to her Dad in a different way and she felt different while talking with him. He'd told her he was proud of her and hadn't been disappointed in her for years. It meant so much to her to learn that, she'd cried. Red was becoming more aware of

characteristics of her verbal interactions. She confided she didn't know how *not* to take things personally, and she tended to

“go off verbally. How do you not take things personally when that's the way they are intended? I hate it when people say, ‘Now don't take this personally, but...’ when it is meant personally.”

While life events continued to unfold, Red expressed feeling calmer. The voice in her head seemed to constantly give her negative feedback but she started to talk back to it [6th session.] She'd made a decision to start looking for a job closer to home to give herself an extra twenty hours a week for living. She was liking and appreciating her husband again; they were getting along and communicating better. He was noticing good changes. Red reported her quality of sleep was improving. She expressed increased self-awareness and was eating less, specifically not snacking [session 7.]

At this point, Red committed to coming in twice a week. She felt the NFT was really helping and even though her life was full of tumultuous events, she found herself, “thinking a lot more clearly; not reacting as emotionally to things.” She gave examples of difficult decisions regarding the house selling, needing to decide on a new place, moving and giving up her beloved dog. Red reported listening more to the conversations and interactions between her van mates. She wasn't feeling so compelled to get involved. She expressed becoming more aware of what was being said and how it was being said and the feelings generated. She felt put off by some of the things said. She found herself thinking about and analyzing those interactions (sessions eight and nine.)

Red reported reflecting on her past and how that influenced her present. She felt less hyper vigilant. She wasn't consumed by reacting to everything [session ten] and had time to write and consider. She was "feeling really good; letting go of a lot of stuff." Red questioned how all these changes could occur without really trying, without it being hard to do. The medication hadn't had that effect; in fact, she continued to reduce her psychotropics. Lexapro she was taking every other day, she reported she kept forgetting. She was consciously reducing the usage amount and frequency of Trazadone, reporting at the fourteenth session that she'd gone for a week without it.

Red's work situation was becoming more stressful. She found she was irritable and felt the training wore off as the weekend ended and the work week loomed. She felt mostly good, optimistic, less troubled, more capable and confident. Red spoke in detail of the significant changes she was experiencing. She was having no problems falling asleep, something that was odd and out of the ordinary for her. She found herself smoking less, only wanting a half of a cigarette. Her snacking continued to be less. More significantly, she had no shopping binges, and no urges.

The changes continued. Red had new insights. She had created a budget and a plan for paying her bills and with her reduced shopping, had some extra money she and her husband could choose how to spend. The plan was working (17th session) She was "changing how I interact and relate to people." Her relationships with her children, siblings and parents were shifting. She was beginning to feel like a grown-up. She felt herself letting go of the hurt child and

embracing her adult self. She felt proud of herself, her abilities and strengths. She had some rough spots but found she had calmed even before her husband returned her call. She was reading about boundaries in various types of relationships and beginning to test and create some for herself. She felt “more aware of dysfunctional dynamics in interactions with coworkers and family.” She stopped apologizing all the time for everything. Her appearance was changing. She was losing weight and she reported her husband noticing she walked and carried herself differently (sessions 18-22).

Red’s stress level was much reduced. She felt calm. She felt a quietness she described as “almost bored.” At the twenty-third session, Red said, “OK, I’m cured, I’m bored.” Life had changed. There was no work drama. Red felt relaxed. Her thinking was sharp and clear. She wrote a procedure manual for work and “it just flowed.”

Red continued weekly sessions of NFT. Over the course of the next four months, Red continued to struggle with blood sugar regulation. She found a new physician and began using insulin injections. The process of finding the right dosage of the best acting medications was complicated by the intermittently tumultuous stress of the vanpool, commute and work. Red felt the situation had become intolerable.

“Relationships with people have changed at work and in the vanpool. I’ve changed and the people around me haven’t accepted my changing. My husband and children have all expressed how NFT and coming here have changed my life for the better. I need to surround myself with the positive in life and purge my life of the negative. My health and wellbeing are my priorities. Even though I don’t have a job here yet, I think I’m going to turn in my resignation. I need to get my diabetes under control and I’m not willing to subject myself to being

bullied anymore. There are no rules about bullying within the union or through Human Resources. I feel I am being forced out and there is really not a good outcome for me in staying.”

I urged Red to sleep on her decision before turning in her resignation, to reflect upon her decision and its possible effects. She “slept on it,” submitted her resignation and subsequently rescinded it, when her supervisor and the office manager asked her to stay. The turmoil in the work environment continued, when just a few weeks later notice of possible lay-offs were given that included Red. Rather than getting upset and depressed, she saw the irony and the advantages, and looked upon it as a new beginning and an adventure.

Red’s blood sugars were leveled and she continued to see things in a positive light. Home and social environments were positive. Relationships with family and friends continued to improve. She was happy in her new home. Red attributed her continued happiness and ability to deal with everything to her NFT. Red expressed feeling that she would have never survived the last year without the training, “It saved my life.” She reports recommending NFT to everyone. Red feels sensitive to the training. She feels an immediate change in attitude following training and knows when she is ready for another.

Summary of Findings

Many thematically identified effects were reported by the majority of clients; however, clients’ processes of change remained unique. Two clients experienced similar and distinct effects following their 1st session that they

couldn't believe possible. Both reported sleeping better than in a long time, and feeling especially and exceptionally well the next day.

Eleven people reported at least one positive effect after their 1st session. Those effects included feeling calm or calmer, feeling more relaxed, feeling good, feeling less overwhelmed, having slept well, and improved mental clarity. Seven people first reported feeling an effect after their 2nd session and seven more first reported after their 3rd session. All but one client had reported at least one effect attributed to the NFT by the 5th session.

Twenty-seven clients experienced feelings of increasing calmness and diminished feelings of anxiousness or anxiety. Twenty-four people reported improved mood and overall improvement in "feeling good." Twenty-three people reported improved qualities of sleep. Twenty-two people provided notations of increased self-awareness about feelings, personal insights, and symptoms falling away. Twenty people experienced a change in the way they were functioning. Just over half, seventeen of thirty-one clients reported a change in their coping skills, being able to go with the flow of life's up and downs.

Other thematic pods contained reports of change from less than half of the clients, yet tended toward reports of change in areas specific to individual issues. Five of the seven student clients reported positive changes related to school that included subjects getting easier to learn, improved school performance, behavior and the school experience being good. Ten clients reported improved qualities of health and diminishment of symptoms in answer to the pre-session question. Those with anger issues reported changes that felt

significant or dramatic to them. The majority of clients taking psychotropic medications reported reductions in dosage and eventual discontinuance. Lifestyle changes concerned self-care and personal attainment.

All clients reported change and attributed positive effects to their NFT. No two clients' journeys were the same and no two clients experienced change in quite the same way or at the same rate. Sixteen of the thirty-one clients attended twenty (20) sessions or less. Three clients have continued to return post-series for periodic "tune-ups."

No typical NFT experience can be captured from this data but some generalizations can be made. The majority of clients experienced a positive change occurring within three sessions (see Appendices C and F) and the initial change was most often associated with:

1. feelings of calming and reduced anxiousness or anxiety,
2. feelings of relaxation,
3. improved qualities of sleep, and
4. a generalized sense of feeling better overall and feeling good.

The greatest numbers of positive changes reported by the majority of clients throughout their course of training were associated with:

1. a decrease in anxiety and anxiousness,
2. improvement in mood,
3. increase in sense of well being and feeling good globally,
4. improved qualities of sleep,
5. increased self-awareness,

6. improved functionality, and
7. improved coping.

Changes reported beyond these were most often related to diminishment of individuals' particular issues, however, most clients experienced changes that surprised them, were unexpected or were beyond their presenting issues. These are discussed in the next chapter. The largest number of reports of positive effects occurred in the 5th and 6th sessions. Changes were described as occurring easily and naturally, as from within.

Discussion of the research findings occurs in the following chapter, along with my conclusions and recommendations for further study.

Chapter Five: Discussion, Summary, and Recommendations

Discussion

This formal research may represent one of those studies that come along years after extensive empirical research has tracked participant response to the comprehensive NDS approach to NFT used by Zengar systems. The findings within this study may only confirm what has come to be known to practitioners and clients of ZIN neurofeedback trainings over the past ten years (Zengar Institute, 2009). One motivation I had regarding the study included having an opportunity to examine and reflect on what I thought I knew about the experience of neurofeedback training and to discover what a systematic research might reveal.

The context of the NFT was a psychotherapeutic setting. This was the setting in which I worked and offered neurofeedback training. People had come for help to make some kind of a change. The majority of clients represented in this study heard of my practice through a friend or an acquaintance. A number of people included had been referred by other health care providers. Most of the young people were brought in by parents, who had heard from another parent or perhaps a teacher or counselor. Some clients had seen an advertisement or had heard of NFT from the internet. The clients represented in this practice-based study were a diverse group. Almost equally represented in gender, the sample provided a wide variation in age, presenting issues, and the number of NFT sessions received.

In beginning the study one of my assumptions held that NFT helped clients get better and that the symptoms of the presenting issues improved and for most, went away. I had witnessed that. I had begun using NFT with three clients that seemed stuck, although sincere in desire and efforts to think/feel/act differently. I had encouraged them to think about working with someone else because I didn't think I was helping them attain their goals, at best I was supporting them at that point. Once these clients began NFT, they soon reported "something was finally starting to change." It was just a few months later that these clients left therapy feeling competent and no longer in need of therapeutic support.

As I began using NFT regularly, I noticed it seemed many of my clients reported an effortless changing concerning their stated problems. It seemed changes also occurred that were greater than expected or were occurring in aspects of their lives that went beyond the hoped for and anticipated. I wondered if clients noticed changes occurring as transformational or attributed changes as related to the NFT. I felt curiosity and a lingering interest in the presentations and proposed research of Alan Bachers.

Susan Cheshire Brown developed questions she used for pre and post session evaluations. I had incorporated the pre-session evaluation into my practice when I began offering NFT, but not the post. It seemed a qualitative research beginning with clients' responses to the fifth question, "*Have you noticed any effects since your last visit that you think might be related to your training?*" provided a natural starting point to discover how clients' described the experience

of NFT and the differences they noticed in their lives. Perhaps in asking the question and drawing the clients' attention to possible effects created a response focus that may not have occurred otherwise. It was not my usual practice in psychotherapy to ask at the beginning of each session if the client had noticed any effects since their last visit that they thought might be related to their therapy.

In collecting and reflecting on the data, I didn't expect to uncover so many reports of sleep problems among the presenting issues. One of my constructs about NFT was that sleep improved, and maybe that it was one of the first things to do so. My sleep had changed dramatically. But I don't think I paid much attention to the sleep aspect unless it was one of the primary issues a client mentioned. Ame's reports on sleep present a good example. She hadn't mentioned sleep as an issue, but after she made mention of sleep several times either as a related effect or in session, I was motivated to ask. Our need for restful, restorative sleep and the difficulties that arise without it have been well documented (Stickgold & Walker, 2009; Cartwright, 2010). That sleep quality was reported as improved for 82% of those initially reporting sleep issues and 74% of the study sample overall, I believe should be considered significant.

My curiosity about dreams and NFT grew out of my lifelong interest in dreams, story and child development. I have interest in the connections between symbolic sandtray play, story and archetypes. Children often tell me their dreams spontaneously while at the sandtray. These interests are combined with a profound interest in the brain and how it works which has grown ever since the brain-injuring birth of my oldest daughter, who shares her dreams every morning.

During the early weeks of my initial NFT sessions, I experienced a couple of weeks where I would awaken almost nightly from dreams I can only describe as yucky. I would wake up from the dream, realize it was a dream, thankfully, think about it briefly and fall back asleep. Sometimes, it seemed like I'd pick up on the dream right where I'd left off. The dreams were about many different things but mostly related to past and fears. I hypothesized these were "dumping dreams," a manifestation of self-healing and self-regulating resulting from my training. The research findings confirmed aspects of dreaming were attributed to NFT by seventeen clients, just over half of clients studied.

Clients who reported troubling bad dreams as a problem had an experience of the bad dreams going away. There was not enough detail from effects reported or from case notes to understand the character of the dreams described as strange or weird by clients to know if they were of the "dumping" type I had experienced. WenD had mentioned "recycling dreams," and Ame had reported that she felt she was "working out a lot of her stuff during sleep." Only Jen reported her weird dreams as being "almost disturbing." I could draw no conclusions. I have a hypothesis asserting healing dreaming constitutes an aspect of silent level healing and self-regulation emergent to optimal daily performance and quality of life. I had not had much previous success at reducing nightmares and bad dreams associated with childhood sexual abuse or other traumas with psychotherapy alone. Research to gain further insight into sleep and dream effects might be worth pursuing.

Thinking about the number of sessions people came for became a focus of curiosity about the change process. Why did most people stop at some point, and others continue and some return for tune-ups? I reflected on the clients in the sample I hadn't seen again that I thought would either continue or come in periodically for tune-ups. There were two in particular. One was ChB who came in for seven sessions over the course of two months. By his report he responded well, making changes in ways he'd identified as wanting. He spent time regularly with his Mom as she was dying and worked on a multimedia sculpture to honor her. He didn't quit without saying anything, but he didn't reschedule at the end of the 7th session, saying he thought he was okay for now. I had a thought that he wasn't ready for any further change just then even though I thought he could or would benefit from continued sessions. Then I had to question my making of a value judgment in his regard. I think I saw as yet untapped creative potential and as yet unresolved troubles.

The other client was Nan, who I thought would come back for tune-ups as a part of her mental health maintenance program as she continued to work her other recovery programs. I realized I carry a construct that those clients who describe troublesome, complex issues as deeply rooted would do better with continued regular tune-ups. The findings do not necessarily support that assertion. Several of the clients included in my research reported especially complex issues; most reported multiple issues. It seems people got what they came for, were released from their constraints and got on with their lives. BH, Jak and Ame seemed to confirm that idea. A longitudinal study could reveal more

about perceived long term effects and might provide insight into its perceived impact in a person's life story.

Change occurred beyond presenting problems. Change occurred that was surprising and unexpected. Su reported her lifelong fear disappeared. We didn't talk about where it might have originated. That change occurred without what I call "trying and crying." BJ expressed surprise when she said she wasn't depressed anymore. It seemed she didn't realize she felt depressed until it went away. For Col, an annual January depressive slump did not occur and his asthma went away. WenD didn't mention her almost daily evening tension headaches until she had not had one for over a month. Mat reported "no headaches lately" an unexpected effect for a problem not previously mentioned. Reg and Mick reported learning disabilities resolving. Ken and Bob reported lower golf scores. Ame lost her PMS. Unspoken intentions and hopes seemed to emerge as effortless, unexpected dietary and self-care activities.

The emergence of the thematic pod, *Feeling Good/Sense of Well-being (IFG)* surprised for three reasons. First, a theme heading for mood had been established. Second, in the pre-session evaluation, the first question reads, "*How do you feel today?*" Clients generally answered that question with a single word descriptor, "fine," "good," "okay" or "alright," or "tired." Third, the similar, sometimes identical phrasing amongst clients stood out. Re-researching re-enforced the theme as separate and different from mood. The change effect repeatedly expressed as "feeling good," "feeling really good," and "so much better overall," interpreted as more encompassing sense of well-being, of "feeling

right with the world,” beyond an improvement in mood. The language of the two thematic pods differs, each addressing variant but related aspects of living as human.

The reported increased feelings of well-being in conjunction to the other effects reported within the other thematic pods seem to address emerging powerful silent level changes occurring from the inside out. Certainly from the human non-linear dynamical systems perspective all effects reported in the theme pods exist as interrelated and interdependent. By providing the CNS information about its functioning via neurofeedback, it can adjust, and self-regulate more efficiently. NFT creates opportunity for increased flexibility and resilience by releasing fixed, repetitive responses.

Caitlin Cochrane, my daughter and practice partner, describes changes as occurring energetically:

“Clients are being so consumed by just getting by and trying to hold it together, that it is not until beginning to feel better that self-awareness increases and the energy released from being stuck allows the real person to emerge in a way that seems effortless.”

Implications

Let’s review here and reunite the NDS theoretical application to the study findings. We exist in a constant state of change as highly responsive thinking/feeling/behaving organisms-as-a-whole-interacting-within-environments-across-spacetime. As humans we live and interact within complex systems models 8 and 9, operating at systems level 7 complexity (Boulding, 1956, 1956/1975; von Bertalanffy, 1968). NFT allows dynamical change toward

efficient self-regulating to occur within the human brain and CNS, presumably at the source. Change occurs as an emergent process at silent levels I, II, and III before verbal description of the noticed and predominant aspects emerge into our consciousness and self awareness (Korzybski, 1958).

Clients' responses leaned towards awareness of change focused on presenting issues but branched to include awareness of changes occurring beyond the presenting issues. In support of the idea that all systems of NFT create change in nonlinear complex ways, the client reports from Monjezi clearly indicated changes occurring in relation to presenting issues and beyond for his two participants. These included decreased feelings of anxiety and depression, with increased feelings of happiness, calmness, optimism and tolerance. Byrne's study focused on the mothers' reports of functional changes seen in their children who had received NFT specifically for symptoms related to autism. Some of the changes seen in the children of the study were also noted in the current study. Reports of improved school performance and ability, increases in self awareness and self confidence, decreased stress and anxiety were common to both studies. Neither the Byrne nor Monjezi study made mention of sleep changes. Parker's study mentioned that the majority of the study participants experienced worse sleep in the PIN period, but a few experienced more restful and restorative sleep.

One of the strengths of the current study lay in its examination of client responses to training across presenting issues providing a broader view to similarities and differences of reported effects. It illustrated the human tendency to notice that upon which we currently have focus. It seemed to allow for the

synergetic richness of change to be reflected, allowing an examination of the whole being greater than the sum of its parts. This study also highlighted the apparent emergent effortless change mentioned by several of the clients...

One client described the ease of change as like having access directly to the President rather than having to begin the process of trying to reach him by talking to a receptionist in the local office of a state representative. “Not that talking to you doesn’t help,” she added.

Limitations

This research acknowledges and the researcher recognizes the complexity of variables influencing humans, and humans interacting with humans and their environments at any given point in space-time. The limitations of this study may include:

1. The lived experiences described here may not generalize beyond those who participated in NFT using the ZIN approach and may not capture the true nature of the actual experience.

2. As the ZIN NFT occurred in the context of psychotherapy, the context of a therapeutic relationship and setting may have influenced the reports of experienced effects and perceived processes of change, therefore, the study may not generalize beyond these participants. The research findings may not have transferability to other settings.

3. This study may reflect subjective bias, such as possible preconceptions held by the researcher or the influence of the personal history of the researcher

having influence over interpretation. As best possible, this has been recognized, embraced and delineated.

4. This study cannot provide evidence of causal relationship between the reported effects and lived experiences of the participants and the ZNC/ZNO NFT. It reports subjective information, abstracted multiple times from the actual or silent levels of experience.

5. This study may have limited representativeness due to the number of participants, the individuality of participants, their ability to articulate their experience and possible influence through myriad variables encountered through daily living.

These limitations can be viewed as study strengths. This study recognizes and does not deny, but embraces and delineates its subjectivity. It recognizes the individual experience, story and journey of the participants as well as the rapid evolution of the technology used.

6. This study reports no negative outcomes.

a. ZIN neurofeedback systems are designed to promote self-regulation. The non-linear dynamical understructure and its advanced comprehensive training model allow the person's own brain and CNS to determine what it needs. The practitioner is not using trial and error to determine the training protocol for the client's brain and CNS. The practitioner of the ZIN NFT only need regulate the amount of feedback, the number of skips. If the experience isn't pleasant in the moment, due to too many skips in the music, the

practitioner simply decreases the number of feedbacks heard. The practitioner's attention remains focused on the client.

Other systems can be less user-friendly and clients may report unpleasant or negative effects temporarily. Parker describes EEG Spectrum system's

“protocol implementation is highly complex and consequently extremely dependent upon the skills of the researcher/clinician,” (Parker, 2003. p.99).

This is completely untrue of the Zengar systems. The system is designed to train comprehensively across brainwave types based on the person's own emergent variability, thus eliminating possible negative outcomes or unpleasant side effects.

b. Within the span of an individual's training, a person may have times of heightened awareness. Dan had a spiritual revelation after his first session. Su reported being more anxious the week following her 2nd session than in a long time. She attributed those feelings to the NFT. I did, too. I think the NFT allowed her to feel emotions she had been successfully suppressing through the use of benzodiazepines. Ame reported a hypersensitivity to light, sound and touch after her 4th session. Bob reported he felt different levels of consciousness after his 8th session. None of these effects were reported as a negative effect

Summary and Recommendations

The purpose of this study was to explore and describe clients' experience of a comprehensive form neurofeedback training received in psychotherapy. Few studies exist that use the trainees' own responses to describe their response to neurofeedback training beyond the scope of a condition or disorder. No previous

formal study of has captured the clients' response and point of view to receiving ZIN NFT in the context of psychotherapy.

The findings indicate the use of ZIN NFT acts as powerful instrument assisting transformational processes in the context of psychotherapy. All clients reported positive effects they thought were related to their training. The majority experienced initial effects of calming, relaxation, improved sleep, and feeling better within the first few sessions. Although strictly a training system and not a treatment, presenting issues were resolved or greatly diminished by all reports. The process of change seemed to occur from within, emergent rather than from learning, conscious effort, or other techniques of change that are incorporated from without. Each client responded in their own way in their own time, their own brain and CNS using the information to increase self-regulatory capacities and increase resilience and flexibility reflected by the following positive effects. The majority of clients reported positive effects relating to:

1. a decrease in anxiety,
2. improvement in mood,
3. an increasing sense of well-being,
4. improved qualities of sleep,
5. increased self-awareness,
6. improved functionality, and
7. improved coping.

Most clients experienced changes that surprised them, were unexpected or went beyond their presenting issues. Clients expressed an awareness of release from stuck patterns of thinking/feeling/behaving, these changes occurring without overt effort.

The ease of using the ZIN NFT makes it an ideal system for use in multiple settings. As a training system, its use is not restricted to professional use or use in only professional settings. The findings from this study need replication, but the findings do imply an almost global beneficial individualized response. Further research could pursue individual aspects of response to some of the particular aspects of change identified. Similar studies from various settings could be conducted and compared. These could include schools, mental health units or prisons.

Perhaps another question left for research and explanation within the ZIN paradigm addresses whether psychotherapy, the talking about, remains necessary. Following and reporting on the experience of two groups would further clarify the perceptions of effects attributed to the ZIN training. One group would receive stand alone ZIN NFT sessions while the other would receive ZIN NFT within the context of the psychotherapeutic setting.

Another study of interest would involve optimal performance training for Navy submariners. The men who serve in the Navy on the nuclear submarines carry a high level of security clearance. Any hint of need for mental health services can lead to loss of security clearance and to loss of income, status, and job security. I believe ZIN NFT would benefit these men. A stand alone study

providing ZIN NFT to these men for optimal performance could be conducted using only the pre and post session evaluations without any psychotherapy offered or included.

The use and benefit of using ZIN within wider academic settings as suggested by DeLong (2002) would be another worthwhile study. Such a study might be tailored to the special education department or specific pull-out assist programs either for reading or math. Pre and post testing of training/no training groups would allow researchers to explore potential benefits from multiple perspectives. This suggestion does not imply narrowing the focus of the research for specific academic effects, but to keep the view broad to capture the possibilities as well as test predictions.

APPENDIX A

The Clients

The Clients and Their Responses and Further Notations From Case Notes

*** triple asterisks indicate where a client expressed a difference that was unexpected or surprising

“...” quoted comments are taken from case notes when associated with the responses to the “*Have you noticed...*” question.

Client 1: female: Su, 55 years old: 40 sessions in 4 months

Self described issues: anxiety, stress and poor sleep

Medications: Ambien, Ativan, and Prozac

Self reported use of alcohol: about 5 beers or a bottle of wine daily

Session responses:

1-2: more anxious this last week than in a long time

1-3: felt very calm until 6 pm, sleep improved “I felt so calm, *very different*, I’ve been a nervous wreck since I was a child.”

1-4: felt relaxed when I left here, lasted into evening, feeling better

1-11:*** able to talk to my husband in a way that worked; dreamed of mice and bugs all over the hallway - weird, Last few nights sleeping better

1-14: ***fear disappeared

1-16: feel good, mood improving

1-18: felt "normal" for 2 days, like myself; stopped taking Ativan

1-20: odd, unusual and remembered dream

1-22:***in discussion with husband there was no blaming, in it together

1-25: I got a job

1-26: went off all benzos

1-27: feel better than I have in a long time; went off my hormones, relationship with husband improving

1-28: drinking less; able to notice my anxiety response to certain events

1-33: ***able to address a problem with my hairdresser

1-34: don't stay upset as long, better able to get back on track

“I’m calmer overall. I’m dealing with a whole list of stressors pretty capably, plus the added stressors of the holidays, my parents’ illness, upcoming move and my husband’s retirement.”

1-36: more centered, more self-confident, fighting with spouse less

1-39: calmer now, more together

1-40: more organized, dealing with stress, it's not getting to me; I've changed, I look at things differently, respond differently

Client 2: male: Reg, 15 years old: 17 sessions in 3 months

Self described issues: mood, ADHD: concentration, distractibility thinking, schoolwork

No medications now, previously tried Concerta

Session responses:

2-3: relaxed, not so tired

2-4: faster answering questions in class

2-5: sleeping better, remembering things
2-6: thinking more clearly, like I can think about it more and think about the answer to make sure it's correct, not as moody
2-7: felt quieter
2-9: ***math homework done before out of class today!
2-13: weird dreams
2-15: being able to be more organized
2-17: *** math easier

Client 3: male: ChB, 45 years old: 7 sessions in 2 months

Self described issues: not happy, sad, lonely, anxious, panic attacks, sleep problems, procrastination, mom dying
Medications: Benzodiazepines
Alcohol use: 2-3 beers daily, six pack Sat & Sun

Session responses:

3-2: feeling more motivated
“...do want to increase my self esteem; woke up without the Alarm, didn't turn the TV on...”
3-3: getting more done, less Xanax
3-4: started working out
3-5: less anxious
3-6: more settled, reassessment of life, stopped benzos
3-7: much more motivated
“Not completely out of slump...”

Client 4: female: Pam, 48 years old: 26 sessions in 7 months

Self described issues: Traumatic head Injury – 1981, divorcing, suicidal, very depressed
Medications: Prozac, Trazadone
Alcohol: an occasional glass of wine

Session responses:

4-1: feel calmer
4-2: felt better for awhile
4-3: ***laugh returned, able to switch thoughts
“My laugh returned Saturday, couldn't believe it, when I had my TBI felt my personality change, now seems like I'm getting myself back ... I've been able to switch thoughts, I'm not constantly thinking about what he did”
4-4: “I feel so good when I leave here, it just doesn't hold long enough.”
4-5: feel calmer, crying less, thinking about the future
4-7: ***-want to forgive my cheating husband instead of killing him
4-8: ***slept last night
4-9: thinking about going back to work
4-10: crying less, going back to work
4-16: standing up for my self, more assertive
“I told my husband I can't talk to him, he keeps coming over, calling, harassing, so I got a restraining order... feel getting railroaded by attorney so I fired him, meeting with a new one next Tuesday...”

- 4-17: there's been an emotional shift, stopped Prozac
- 4-19: feeling good, hopeful
- 4-21: *** doing things again and enjoying them, decided to change my name
 “to a new last name, not my maiden name, can do it for free as part of the divorce; I’ve been gardening, sewing, being Grammy Pammy, getting a new house...”

Client 5: male: Col, 6-9 years old: 60 sessions in the first year, 35 in the second year and 23 in the third year, 118 total and tune ups since

Parent described issues: ADHD, possible Bipolar, doesn't sleep in own room, bedwetting, temper

Medications: Hx: Ritalin, now Strattera

Session responses:

- 5-3: ***slept in my own room 3 nights, feel calmer
- 5-5: something about my temper is changing, sleep improving
- 5-8: having better days
- 5-10: temper better, able to sit for a whole hour on an art project
 Mom: “This is a first.”
- 5-16: going to bed and sleeping in my own room all night
 Mom, “we went out of town and he had great behavior!”
- 5-18: continuing to sleep in my own room
- 5-19: 1 day w/o meds - not so good
 “My brain was going too fast and it was hard to focus.”
- 5-21: better days
- 5-22: feel good and happy
- 5-28: no more bedwetting
- 5-30: reduced meds
- 5-31: energized but relaxed
- 5-32: school was good
- 5-34: feeling calm and relaxed
- 5-35: school was good
- 5-37: doing better
- 5-39: change in handling difficulties at home
- 5-40: have had a great ten days
- 5-42: off meds
- 5-46: appetite up, gaining weight, feeling good, less mood swings, less anger
- 5-48: good day at school
- 5-57: martial arts going well
- 5-60: good week
- 5-67: going well until today
- 5-68: feel very good doing schoolwork today
- 5-73: was grumpy when I came in but now happy
- 5-76: feel good, training is holding
- 5-89: ***no asthma at all this fall
- 5-91: school is good, I'm sure glad my ADHD is under control
- 5-98: eating, sleeping better, happy, calmer

5-100: 5 weeks w/o session before feeling like I needed one
Mom, "He's really growing and filling out now, 53" tall and 76 lbs."
(8 years old)

5-108: ***no January slump this year

5-118: Asked Mom to make appt; know I needed it; instead of everything being easy, I was starting to struggle and get in trouble.

Client 6: female: *TruD*, 56 years old: 15 sessions in 5 months

Self described issues: Depressed, anxious, poor sleep, racing thoughts, S.A.D., isolating self

Medications: Armour thyroid, natural HRT

Alcohol: at least 1 glass of wine daily

Session responses:

6-1: felt more relaxed for awhile

6-2: relaxed

6-3: feeling calmer

6-4: don't seem to get so upset

6-5: feeling mellower, more optimistic, more grounded, increased self confidence

6-8: ***Things are changing; feeling like I need friends, I'm nicer, not so grouchy

6-12: *** less tolerant of over-extending myself, husband says I'm getting better, anxiety diminished, coping better, strange dreams

6-13: less anxious, less depressed, ***thinking clearly and more motivated

6-15: I've got it now

Client 7: female: *WenD*, 48 years old: 13 sessions in 6 months

Self described issues: Anxiety, lifelong trouble sleeping, Dad would come upstairs, molested me for 7 years, have many dark days

Medications: meds have only worked for 1 sleep cycle, none now

Alcohol: wine, less than 1x weekly

Session responses:

7-3: slept last night 6.5 hrs - hasn't happened in years!

7-4: some I think, it's subtle

"remembered a near death experience, an accident back in '85 where I'd had a kind of premonition that morning, remembered the hyper-awareness and my thoughts, it wasn't my time...the remembering helped...centered, more grounded, somehow safer?"

7-5: sleep improving, feeling pretty good, felt really good after last session, ***breaking up old patterns

7-6: sleep improving - even overslept! Feel a flow present

7-7: ***more on even keel! Feeling good

7-8: longer periods of sleep w/ shorter periods of wakefulness, recycling dreams

7-9: ***Felt my heart open and a heavy weight lifted, thinking about old stuff and how far I've come

7-10: feel an appreciation of self, unpleasant dreams, insomnia improved from severe to mild

“Two nights sleep were magical. I feel kind, gentle, in the moment; not revengeful. It’s always been hard to let myself relax or play, because I was always waiting...now I’m feeling connected to the spirit, an appreciation of self...many symptoms gone, I feel much improved.”

7-13: easier on myself, not worrying, no longer hyper-vigilant

“I had mild tension headaches more evenings than not; I’ve had none for more than a month. I’m relaxed, all my sleep issues are very mild now: it’s not hard to go to bed, go to sleep. My sleep is rarely restless and I don’t wake up so much and when I do, it’s easy to go back to sleep.”

Client 8: male: Mick, 15 years old: 27 sessions in 5 months

Self described issues: I’ve been diagnosed with ADHD, auditory processing disorder, math disorder, and a reading comprehension problem. I have low self-esteem, feel anxious and nervous, and I worry a lot.

Medications: generic Ritalin No drugs or alcohol

Session responses:

8-4: not yet

*** “say there is one thing, I am speaking better: more articulate, better vocabulary”

8-5: feel less hyper

8-6: feel calmer generally

8-7: school going better, less anxious, more sure of self

“Mom even says I seem less anxious and more sure of myself, happier; she says I’m making a lot less “checking” calls.”

8-9: mood better, concentration improved

8-10: case notes:

“I feel good, like 9.5; I’m anxious and excited to drive, to have a car, to work and earn my own money. I want to grow and fill out...”

8-15: ***Really not feeling any of the ADHD stuff!

8-16: case notes:

“My GPA is up to 3.1 ...from almost failing.”

8-19: math improved, much better at writing, acting more mature, started track

8-20: school going smoothly, everything going smoothly

8-23: down to half dose of Ritalin and none on the weekends

8-25: schoolwork and homework going better, no more meds

8-26: really don't feel ADHD anymore; learning to drive

“Just went out driving with Bob, my stepdad, he says I’m a natural.”

8-27: ability to read and focus very improved! ***3.3 GPA

Client 9: female: Kari, 28 years old: 14 sessions in 4 months, 7 additional over 9 months, 21 sessions in 13 months total

Self described issues: OCD, anxiety & panic attacks, very controlling, afraid to be myself around husband, trouble communicating, afraid to get pregnant, irregular periods

No medication, drugs, alcohol

Session responses:

9-2: felt relaxed

- “I’m very over-controlling – just want to be able to let go, to release perceived control, to let go of the fear and be myself.”
- 9-3: noticed anxiety was less in a conversation w/ my husband, didn't react as much
- 9-4: ***big change overnight: felt anxiety to husband's impatience and instead of reacting, responded; we talked, no anger, worked it through and it was done
 “I was in the shower and was sensing my husband’s impatience so I called out I needed 5 more minutes ‘cuz I needed to wash my hair. He said “No, I’m fine.” So then I started getting a tightening feeling in my chest, questioning my perception (of his tone), feeling my perception was negated...processed it while in the shower, knew it would continue to bug me unless I said something. After I said I felt my feeling was negated...what does ‘fine’ mean anyway? We talked it out, and I was OK, and it was nice...smoother, and I was over it.”
- 9-5: Not editing myself so much and feeling less anxious
 “I feel this tightness in my chest when I edit myself, I have this fear of being viewed as a child – because of the way I talk, so I’m not editing myself so much and I’m feeling less anxious.”
- 9-6: starting to be able to let go of things; went home a different way and didn't panic
- 9-9: weird dreams, giving myself permission to transform, letting go of trauma and loss
 “Dreams about Scott, about me trying to get him to do something but it was like life or death, a tidal wave or hurricane; woke up, then about my dogs, had to let them go, we lived in a ... (undecipherable)...place and I couldn’t help – needed to place them. Feel like I don’t deserve, felt sorry for myself that I had let it get so bad.”
- 9-10: becoming aware of how I can be, what I want to do; letting myself feel my feelings
 “Started to have obsessive thoughts again and go into depressed mode – blueness came on before he left – 4 months this time, usually starts 4-5 days after; this time, instead I looked at, felt it, called my sister, drove to Oregon on Saturday, spent the weekend with her. Saw a black lab along side the freeway, stopped and picked it up and took it to a shelter, felt good, I feel good.”
- 9-11: not obsessing, tics diminished, compulsions less active
- 9-13: OCD trends – pretty non-existent, not noticing anxiety as much, moments only and not so overwhelmingly physical.
 “Starting to feel more ready, I feel capable to be a parent.”
- 9-15: only moments of anxiety, think I'm pregnant, really feel happy these days
- 9-16: (4 months later, in for a tune up)
 “Baby is due in 2 months and Scott and I have orders to go to Hawaii in April of next year, so I’ll be going home. Feeling some anxiety and some stuck thinking.”
- 9-18: case notes:
 “Glad to have appointment today – feeling a bit anxious, Scott has been gone this whole time, won’t be home for the birth. My Mom’s coming, slightly nervous about her being here so long.”
- 9-21: case notes:
 “Need to be more often open to accepting help. Joined and really like the ‘new moms’ group.”

Client 10: female: Dee, 10 years old: 33 sessions in 5 months

Parent described issues: Post Traumatic Stress Disorder, Reactive Attachment Disorder, anger, violence, attention, focus, follow through, lies, steals

Medications: Trilipal, Strattera

Session responses:

10-3: sleeping better

10-5: something has changed; making better choices, things have been more positive

10-6: trying lowered .5 dose of Strattera

10-9: haven't had any bad dreams

10-11: nightmares are gone

10-12: had a good week at school

10-13: card has been only green or yellow at school

10-15: sleep is much better

10-18: feeling good; notice I feel clearer at the end of the session

10-24: feel calmer and happier generally and mood swings are less noticeable

10-26: mostly good mood

10-33: continuing to reduce meds

Client 11: male: Jak, 23 years old: 6 sessions in 2 weeks

Self described issues: can't sleep, depressed, anxiety, grief

No medications

Drug and Alcohol: smoke pot once or twice a week, occasionally beer and wine, 2-3x wkly

Session responses:

11-1: case notes:

“Girlfriend broke up with me last July. Talked to her this weekend and it hurt some more – no closure on my part – makes me feel like a bad person for still caring. ...Had to take fall quarter off ... too depressed. My dog died, had him for 16 years, then the other family dog died, and both grandparents: it's just too much...”

11-4: able to fall asleep and sleep well

“Stressed by how I feel, anxious to not feel this way anymore.”

11-5: haven't smoked any pot, mood improved

11-6: feeling better all around, going back to college next quarter, ***weird how the anxiety just went away

Client 12: male: Ken, 55 years old: 15 sessions in 3 months

Self described issues: anxiety, depression, low self-esteem, ADHD symptoms: focus, concentration, lack of motivation, grief, tics, would like to quit smoking

No medication

Alcohol: an occasional glass of wine

Session responses:

12-1: case note:

“I've felt so sad, a great sadness – for a long time now. Previously motivated, focused, not focused now, and cannot concentrate. I've

withdrawn from activities and friends, I feel apathetic, have no competitive spirit, no ambition, and I've lost interest in my job."

12-5: feeling pretty good

"Looking forward to learning a new computer program tomorrow."

12-6: can't say that I've noticed a change so far

12-10: mood better, competitive spirit up, smoking less

12-12: ***golf score lower, odd dreams, considering getting real estate license

12-13: mood improving

12-14: feel my assertiveness returning

12-15: sad only occasionally now, mood and motivation are up; ***played a whole round of golf w/o smoking, putting game was good!

Client 13: male: Jess, 30 years old: 25 sessions in 11 months

Self described issues: 3yrs.of extreme anxiety, panic attacks, migraines, poor sleep, symptoms of depression and ADHD, vertigo

No medications, minimal alcohol

Session responses:

13-3: only 1 migraine since starting, feeling better

13-4: less anxiety

13-8: less anxiety

13-9: having some strange dreams

13-10: rarely having any panic now

13-11: Sleep improving now, putting less pressure on myself, ***feel good

13-12: sleeping better

13-15: vertigo much less, panic attacks rare - can breathe through

13-16: depression has lifted, bad dreams diminished, anxiety diminished, minimal panic

13-18: things going well, not depressed - happy

13-19: not slipping back between sessions, all symptoms vastly diminished

13-21: vertigo not so bad

Client 14: female: Jen, 31 years old: 20 sessions in 2 months

Self described issues: Diagnosed Bipolar as a kid, had 5 suicide attempts by 10 yrs. old, multiple hospitalizations, a depression at 23 y. o., 25 y. o., at 27 y. o. a really bad one, needed help to get through; now depressed: can't focus or concentrate, isolate myself - can feel when its coming on; sensitive to food textures

No medications

No drugs or alcohol

Session responses:

14-2: calmer in general

14-3: feeling productive, was able to awaken w/o alarm, work accomplished

"Very productive, easy day: got up, got my work done and even had extra time for reading, really feeling pretty good."

14-4: mood has stayed good

14-5: mother noticing changes in me, having weird, almost disturbing dreams, minor compulsions lessening

“It’s always been hard to make decisions, I’d panic, feel overwhelmed; I was beginning to feel that way but it’s less...”

- 14-8: *** even buying the car was so much easier
- 14-12: mood improving, find myself eating more regularly and drinking water, sleeping more and more restful
- 14-13: sleep getting better, more relaxed and energized, mood feels more manageable, at first I felt I had to go back, now more manageable & not having a negative attitude, thinking its time to get my own place
- 14-14: socializing more
- 14-15: biggest difference I've noticed so far is in my mood; I'm feeling more the way I am supposed to feel. coping abilities improved: do not get so frustrated as with computer yesterday, noticed it stayed in proportion and I didn't tweak; I'm feeling more the way I am supposed to feel; centered, focused
- 14-16: started taking a dance class; dealing with things as they come up and starting to sort out the reality of a situation from my fears & fantasies; ***ate spaghetti with chicken, tomatoes and onions: "can't believe I'm eating this!"
- 14-18: OCD stuff receding: rituals, less sensitive to taste and texture – getting better all the time
- 14-20: making changes - will come back for tune-ups if I need them

Client 15: male: Jon, 45 years old: 32 sessions in 9 months

Self described issues: Sleep issues: restless, wake up frequently & early, talk in my sleep, ADHD: disorganized, lose things, forget, timeliness

Medications: none now but tried 30-40 mg Adderall for a couple of months.

Alcohol: Beer daily and hard liquor frequently

Session responses:

- 15-2: felt very calm for the rest of the day, didn't fret
“Noticed feeling very good about the good job my crew would do, thinking about that during the session.”
- 15-4: Not feeling as rushed
- 15-5 Feeling calmer in general, less over-scheduling
“Getting my work into the bookkeeping system on the computer, put a file box in the truck to file, keep track of jobs, scheduling: really realized today so need to use a planner: today for example, I thought about it in the middle of the night....scheduled, then realized I’d double scheduled, so called in the morning.”
- 15-6: Sleep improving, dreaming
- 15-7: dreams, less cluttered
- 15-8: took a day off, read a book and had a great nap
“...realized I just go, go, go and give give, give, usually work seven days a week, so I stayed home yesterday, had a day for my self.”
- 15-9: feeling really good, able to speak more to the point, not letting things slide: addressing quickly and directly
- 15-10: Not feeling as scattered
- 15-13: more relaxed and even keeled
- 15-15: ***I'm really okay w/ letting go - getting the guys on the job & leave'em be - that feels good to me and that's a totally new experience
- 15-19: Sleep vastly improved now; organizing: designed a system for tracking my work & work orders

“Chris and I have kinda called it quits, she came to the end of her rope and that was maybe my intention. I want to get married, maybe even have a family but I need someone closer matched to my beliefs and interests...I was ready, don't feel bad, except, but I didn't want to hurt her either.”

15-20: Sleep has continued to be better than it has for a very long time

15-21: Feeling really good, life is good: even when there is a bump, I can handle it calmly w/o getting upset: just deal with it & go on

15-26: Sleep continues to be good

15-27: It's been 4 months, when I've thought about this, it is holding: feeling really good, less scattered, calmer, more focused, keeping things more orderly & together. My guys say I'm not getting upset or angry like I used to and I laugh a lot more

15-29: Switched to decaf coffee - only 3 cups caffeinated this past week

“Working long days, but taking Sundays off now.”

15-32: You know, I was clean and sober for 9 years - now down to 2/day thinking it's time to quit for good

Client 16: male: Ted, 51 years old: 36 sessions in 12 months

Self described issues: Sleep issues: wake up about 3 and can't get back to sleep; stressed, anxious, scattered, racing thoughts, always second guessing myself, lack of self esteem and self confidence

No medications.

Alcohol: glass of wine now and again

Session responses:

16-1: feel so much more relaxed than when I came in

16-2: felt good, relaxed, slept in

16-3: sleep improving, sense of relaxation lasted the rest of the afternoon.

***Have been realizing the last couple of days how much the anxiety affects my mood - didn't realize that before

16-4: Feeling of relaxation lasting a bit longer, having more insights

16-5: very different experience - energized

“felt more anxious temporarily, maybe related to disclosure of my more hidden side of self-development...wife doesn't share interest, but it is my true interest”

16-6: Have felt really good and relaxed the last few days

“Haven't noticed any new insights in the last few days.”

16-8: Sleep continues to get better generally, six straight hours last night

16-10: better week

16-11: Feels like sleep patterns are getting better

16-12: Good sleep, slept straight through

16-13: This last week - sleeping longer but not all the way through

16-14: Sleep has been better this week, even slept through the wind and rain last night

16-15: Sleep improving: more restful, didn't nap to or from Seattle on the boat

16-27: letting go of a lot of old stuff, re-evaluating, through all the efforts I'm making, enthusiasm is up and anxiety down

16-30: letting go of old tapes, felt like guiding myself through a dream

16-36: anxiety comes and goes as soon as I notice; waking up a lot at night but very easy to get back to sleep

Client 17: male: Mat, 51 years old: 17 sessions in 6 weeks

Self described issues: Kidney transplant, many health issues since, low motivation, difficulty with concentration, procrastination, mood; insulin dependent diabetic since 27 years old; haven't worked for over a year, not since operation

Medications: I take 19 different kinds for the various health issues; but just Lexapro 20 mg for mood

No drugs or alcohol: clean and sober; A & D history, recovered alcoholic

Session responses:

17-2: calmer, less fidgety, more gregarious: lasted into the early evening

17-3: 1st session energized, 2nd session tired - went home and took a nap. Feel motivated to be motivated

17-6: Feeling good, improving, more focused, less rest stops

17-9: Motivation up, but still not quite where I want it to be

17-13: Feeling good mentally and emotionally, ***no headaches lately

17-14: getting better all the time, reading again

17-17: Feeling better physically now, too, less tired, more invigorated; a lot has changed.

Postscript in case notes: Called to say went back to work shortly after finishing series.

Client 18: female: CeCe, 42 years old; 26 sessions in 12 months

Self described symptoms: Anxious, depressed, sleep problems, low self-esteem

No medications just 5-HTP, homeopathics as needed

Alcohol: wine almost daily

Session responses:

18-1: felt more peaceful, did open up to my husband after (it felt safer) about my fears, anxieties, and vulnerabilities

18-2: felt more motivated and encouraged

18-3: dreaming, remembering more and more about things that happened

18-4: feeling calmer, happier, thinking a lot

18-5: remembering and reliving past hurts

18-6: a bad dream woke me, didn't sleep very well; interested in making healthy friendships

18-7: gaining a greater overall sense of peace, feeling more neutral, having wonderful memories

18-8: dreams

18-11: more strange dreams

18-13: feeling really good, great week

18-14: releasing anger, increase of activities

18-15: weird dreams

“family in danger and I am the rescuer; dreamed A was molested, same age as now, mad, helpless feeling, mad at God, lots of imagery, revelations – end times, makes me wonder how we perceive our truths.”

18-17: feeling better, happy, more aware of feelings

18-18: memories now crisp, remembrances clearer, easier, motivated

18-19: just doing better

18-20: feel like I'm back, after 4 years!

“I'm learning to ask questions until I get the answers; doing some self-reflection: what is it that P is doing that triggers something in me? Now able to confront my

own fears, not make assumptions, think about intentional versus unintentional hurts, beginning to let go.”

18-21: flashback dreams

“I’m experiencing a lot of childhood flashbacks and remembrances about my Mom, kids at school bullying me, beating me up; continue to feel estranged from my Mom.”

18-26: feel like I felt before married, feel free like I've broken out of prison, losing weight, creating boundaries, able to assert myself

Client 19: female: Alli, 17 years old: 17 sessions in 9 weeks

Self described issues: Stressed, sleep poorly, tired, trouble with memorization, math

No meds, drugs or alcohol

Session responses:

19-4: starting to sleep better

19-6: sleeping

19-7: sleeping better

19-8: slept really good last night, less moody, doing good

19-9: calmer, slept like a rock last night

19-11: going to sleep easier now

19-14: nothing specific but getting better in general

19-16: sleeping well

19-17: sleeping well, temper calmer

Client 20: male: BH, 13 months old, 6 sessions in 3 weeks

Mom described problem: Every time he wakes up screaming from naps and at night and cannot be consoled.

Session responses:

20-2: slept through the night

20-3: woke up happy from nap

20-4: sleeping better and less waking up screaming

20-5- only 1 incident of waking up crying and calmed quickly

20-6- no more problems, seems happy

Client 21: female: Ame, 31 years old: 21 sessions in 5 months and tune-ups

Self described issues: recurrent depressions, angry, hyper, fidgety, rigid in habits and thinking, compulsive tendencies, reading dyslexia: invert letters and have poor comprehension

Medications: tried Zoloft and Celexa, but not taking any now

Alcohol; social drinking - out with friends a couple times a month

Session Responses:

21-3: that night too jazzed up and couldn't get to sleep until midnight, then slept really hard and it was difficult to get up; next day really good, and that night had a great sleep

21-4: felt hypersensitive to light, sound & touch

21-5: feel even and relaxed

21-6: more comfort with self honesty

21-9: more clarity, less anger, less teary; feel assertive, strong, focused; dealt with an incident proportionally & as needed
21-10: not so many tears outside of session, more aware, feeling my feelings
21-12: dreams have not been as vivid or as apparent as they used to be; not as exhausted
21-14: good things happening, very little anxiety, feeling joy and elation
21-15: less food cravings***, no PMS symptoms*** I am being able to listen w/o need to fix or take responsibility***
21-18: calmer, anger mostly gone, not bitter, increasing self confidence
21-19: more and more cognizant of anxiety triggers and choosing how I will respond
21-21: so lack of anxiety

Client 22: female: BJ, 81 years old: 41 sessions in 6 months

Self described issues: Diagnosed with Parkinson's 5 yrs ago, glaucoma, heart - leaky valve

Medications: Sinemet, Beta blocker, glaucoma eye drops

Alcohol: only very rarely and then only a sip or 2

Session responses:

22-4: slept well, got up 1 hr earlier w/o being called
22-5: walked last 3 of 4 days
22-6: sleeping well, restful sleep; no back or hip aches, out-walked husband
22-7: noticing I always feel more relaxed after a session; had 1 restless night: got up for awhile, back to bed and woke up at regular time feeling fine
22-8: feel better generally, no aches or pains, doing more
22-9: another night session, got up and sat in the chair, restless, then back to bed and woke up feeling fine; feel great - no aches or pains; not depressed***
22-10: weird dreams; great physically, continue to out-walk husband
22-11: hand tremors diminished
22-12: waking up energetic
22-17: have good ambition, maybe overdoing it a bit
22-20: 2 walks yesterday
22-22: continue to feel ambitious - then go too hard
22-23: no more scary dreams; I woke up laughing from one dream; hand trembling continues to be less
22-32: Tuesday was outstanding, a really super day! Really like doing NFT
22-36: forgot to say I had discontinued the Parkinson's meds; starting glutathione
22-41: feel good, posture improving

Client 23: female: Nan, 25 years old: 100 sessions in 12 months

Self described issues: severe bipolar with multiple hospitalizations, severe ADHD, highly anxious, high rate of impulsivity, sleep issues, sex and alcohol addict, history of sexual abuse, anorexia/bulimia

Medications: Lithium, Lamictal, Paxil, Depacote

Drug and Alcohol usage: recovering addict; attending SA and AA

Session responses:

23-1: felt calm for the rest of the day and slept well;
23-6: feeling calmer, focused, feel I can accomplish more
23-7: easier to drive*** more focused

23-9: feeling really good
23-10: started exercising
23-11: not reacting to things the way I used to
23-12: anxiety periods may be as great but don't last as long
23-16: letting go of old issues, change of outlook, reassessing relationships
23-19: letting go of old issues, change of outlook, reassessing relationships
23-20: lowered meds; letting go of my attachment to chaos & drama, not reacting
23-23: generally feeling good, stable, following through
23-31: 102 days sobriety and celibacy
23-41: lowered meds and feel brighter, good, more up
23-43: being able to continue to work my program
23-50: my Dad says there's been a tremendous change in me overall
23-90: just continuing to do great; psychiatrist feels NFT working well for me and now doesn't need to see me for 6 mos.
23-100: my sponsor says she's never seen such rapid healing acknowledging NFT w/ program; asked me to present at AA convention

Client 24: male: Dan, 38 years old: 20 sessions in 2 months

Self described issues: depressed, angry, really miserable for 2 or 3 years at least, can't stop drinking

Medications: Seroquel, Cymbalta, Zoloft, Antabuse

Self reported drug and alcohol usage: Alcoholic, beer, quit for 5 years, sober 5 days now

Session responses:

24-1: feel relaxed
24-2: had a spiritual revelation
24-3: feel sense of joy
24-4: feel calmer, less anxious; dreaming & remembering my dreams
24-5: feeling good, cut Seroquel to 1/2 dose
24-6: feel really good: sense of calm & peace; pent up anger & frustration gone, quieter, less frantic
24-8: calm, peaceful, relaxed, focused
24-9: decided to start my own company
24-11: no urges to smoke or drink, no doubts, no negative self talk
24-12: lowered meds, off Antabuse
24-17: feel much better, generally chipper now
24-20: more patient with people, driving. Able to enjoy life, take time to relax

Client 25- female: Brie, 21 years old: 16 sessions in 2 months

Self reported issues: moderate depression, high anxiety: cannot calm myself; panic attacks, difficulty going to sleep, wake frequently

Do not use drugs or drink alcohol, no medication

Session responses:

25-1: feel less overwhelmed
25-2: more relaxed, fell asleep a little earlier and didn't wake up as frequently; no anxiety or panic attacks

“felt better about things, not like at midterms when I felt like I just might explode”

25-4: I am feeling more like myself

25-6: getting to sleep easier, no anxiety attacks

“didn’t freak out leaving my reading at my folks house”

25-7: ***still no panic or anxiety attacks

“This weird thing happened. My leg swelled up while I was at the coffee shop studying with a friend. Went home. Went to ER, maybe a clot, sent home with instructions, no medication. Felt a little anxious and worried that something might happen in my sleep and I wouldn’t notice; but it was okay.”

25-8: no more anxiety attacks; sleeping straight through

25-9: less anxiety in traffic; sleeping really well, 2 nights went to bed before midnight and slept through until 7 - really different for me

25-10: Last night I didn't sleep very well. I kept waking up and it made me realize how much my sleep had changed because that was the first time in a long time that had happened.

25-11: sleep continues to be good; no anxiety attacks

25-12: finals were much easier than midterms: not so stressed out, just did it - really a big difference - didn't go through the thinking "oh dear, I'm so stressed" not as intense almost could write it off

25-13: my phone died and I didn't panic. Within minutes came up with a couple of plans - usually would have gotten panicky

25-15: have been able to handle situations I wasn't able to before

25-16: feel like I'm good to go

Client 26- male: *WH*, 78 years old: 20 sessions in 3 months

Self described issues: getting lost while driving, forgetting names, forgetting what I've read, unable to sequence self history

Medications: supplements only

Alcohol usage: martini and wine daily

Session responses:

26-4: feel good

26-6: ***seem to be getting more organized, thinking a little sharper maybe

26-8: remembering events from childhood, ***typed on typewriter w/o making mistakes

26-10 didn't get lost driving in Seattle

26-11 easier to concentrate, ***feel stronger physically

26-12: can sequence chronologically my addresses and schools from birth to going into the Navy

26-17: better able to express my thoughts

Client 27- female: *Bev*, 53 years old: 15 sessions in 10 months

Self described issues: 3 months post double mastectomy, pain, depression, hot flashes, poor sleep

Medications: Tomoxafin, Clonidine, Effexor, Neurontin, Melatonin

Described Alcohol usage: an occasional glass of wine but it reacts with my meds

Session responses:

27-1: feel mind quieting

27-2: less hot flashes and less intense; Husband noticed a difference in me: calmer, softer

27-3 asked to go off all meds, only Tomoxafin to remain, sleeping better

27-4: more relaxed, less hot flashes, feel sharper at work

27-5: less pain, much less stress, improved coping ability, sleeping better

27-7: rare hot flashes - seem triggered by stress; sleep improved, feels luxurious

27-8: better disposition, less fragile, felt good all week

27-12: increased creativity

27-14: memory improving

27-15: sleeping well and no longer depressed

Client 28- male: Bob, 70 years old; 40 sessions in 2 years

Self described issues: Lifelong history of things not going right, negative disposition and attitude, angry, feel like a rudderless ship

Self described medication, alcohol and drug usage: Supplements only, no medications, not even aspirin for 25 years: no drugs, no alcohol, no coffee or soda

Session responses:

28-1: feel amazing - had to call to tell you

28-2: that feeling wore off the further from the session, but sleep improved: better than in a long time

28-4: feel calmer, less mind chatter, sleep more soundly, dreaming

28-5: calmer for the most part, softer demeanor in dealing with people

28-6: positive impact, much calmer, much happier, marveling at how I am dealing with people

28-8: felt different levels of consciousness, feel better this week than last

28-10: having some personal revelations: do love myself; releasing hate and fear

28-14: I've found myself whistling and humming - that's unheard of!

Client 29- female: Red, 41 years old; 28 sessions in 5 months

Self described issues: feel like I'm going crazy: anxious, afraid I'm losing control, overwhelmed, mind racing

Medications: Lexapro, Wellbutrin, sleep medication, BP and pills to control insulin level Alcohol: not with all the meds

Session responses:

29-1: this is relaxing

29-2: I had some good days -things have smoothed out some

29-3: guess I've quit taking Wellbutrin - none for 4 days - forgot. Noticing how anxiety feels, anger and anxiety appear, I get a bit manic, then feelings dissipate, compartmentalizing

29-4: ***able to talk to my Dad in a different way

29-6: getting calmer

29-7: Husband noticing good changes, increased self-awareness, eating less, sleep improving

29-8: thinking a lot more clearly, not reacting as emotionally to things

29-12: feeling really good; letting go of a lot of stuff

29-13: Lexapro every other day - keep forgetting;
29-14: I've gone without sleep medication for a week now
29-15: no problems falling asleep -very odd for me; ***smoking less, not snacking like I used to; no shopping binges
29-17: new insights and awareness: changing how I interact and relate to people
29-18: weird memory dreams with smells and feelings; not over analyzing; husband says I'm walking differently and carrying myself differently
29-19: ***so many self discoveries; losing weight, don't have the same urges, making boundaries
29-21: feel self-confident, so much better overall, epiphany of what I want to do
29-22: feel myself becoming an adult and more aware of dysfunctional dynamics in interactions with coworkers and family
29-23: ***Not apologizing all the time for everything; I'm cured, I'm bored - no drama
29-26: having weird dreams that seem significant but then forgotten by the end of the day

Client 30 – male: Don, 57 years old; 37 sessions in 7 months

Self described issues: ADHD, sleep problems, irritable, persistent repetitive thoughts and speech, disorganized, cannot focus, lose things, always late, really hyper

Medications: Adderall -XR 20 mg.

Self described alcohol usage: an occasional glass of wine

Sessions responses:

30-3: something is different, can't quite tell what it is, feeling calmer, not so all over the map

30-5: Wife thanks you for the new me: says I'm not barking at her, better able to carry on a normal conversation, really communicate, not so irritable or overly wound up

30-6: calmer, less defensive, less flare-ups: notice I need to stop interrupting

30-7: my "o-well" factor has increased, sleeping better, more productive in less time

30-8: noticing I'm becoming more organized

30-9: liking the way I'm feeling, just want it to be more and faster

30-10: Don't feel as tight, like the way I'm feeling, not on the defense all the time

30-14: not just surviving anymore but not yet to thriving, problem solving getting better and getting more done

30-16: calmer, more able to relax, working towards goals: taking breaks, not being a doormat trying to please everyone, creating some boundaries

30-17: better able to manage multitasking, took time to take wife on a date, letting the other person finish their thought before starting to talk

30-20: sleep improving

30-21: no trouble sleeping, haven't had a meltdown or flown off the handle

30-32: able to formulate plan and articulate it, can explain my thought process; don't feel I am getting walked on so badly, prioritizing

Client 31 – female: Mel, 54 y.o.; 90 sessions over 2 years

Self described issues: Fibromyalgia

Medications: Tried Flexeril and Cymbalta, discontinued due to severe side effects

Alcohol usage: not reported

Session responses:

31-1: Can this be real?! Felt elated all the next day. The clarity! It was such a good day! Slept well, better than in months, woke up wide awake. Tuesday not as bothered by pain, it was less intense

31-2: changes subtle but noticeable; Quality of sleep improved but not as great as that first night; Concentration improved; Pain reduced from an 8 or 9 to 4 or 5

31-4: No Fibromyalgia pain 'til Friday (4 days after session); started having weird dreams

31-6: sleep good; pretty good mood; have more energy, and pain has diminished quite a bit

31-7: bizarre dreams

31-8: sleep definitely good since starting; strange City Hall-hairdresser dream, mood good

31-9: Fibro pain less, sleep continues to be good

31-10: Have been almost symptom free since we started

31-14: did poorly missing a week

31-16: spent all day yesterday out in the yard

31-17: Don't let much get to me now

31-17: I was pretty wired, now keep more in stride

31-18: Since I've been coming here my life is really different

31-20: Just feel so much better

31-20: couldn't have handled dental appointment for root canal – last time was out for four days – not this time

31-22: Having vivid, in color dreams with conversation

31-23: able to do more activities

31-23: less pain

31-23: better concentration

31-23: calm

31-24: Have gotten more things done in the last few months than I'd done in the last 3 years

31-24: a lot of dreams

31-24: not so anxious

31-24: find moments of peacefulness

31-24: a change in how I approach things, I ask myself, "Does it really matter?"

APPENDIX B

Themes Summary

Client: Session: Responses made assigned to theme

Anger and Temper (Ang)

5-5: something about my temper is changing
28-5: softer demeanor in dealing with people
30-5: not so irritable or overly wound up
24-6: pent up anger and frustration gone
30-6: less flare-ups
4-7: want to forgive my cheating husband instead of kill him
6-8: nicer, not so grouchy
21-9: less anger
5-10: temper better
18-14: releasing anger
19-17: temper calmer
21-18: anger mostly gone
5-46: less anger

Anxiousness and Calming (Anx/Calm)

4-1: feel calmer
18-1: felt more peaceful
23-1: felt calm for the rest of the day
27-1: felt mind quieting
1-2: more anxious this week than in a long time
14-2: calmer in general
15-2: felt very calm for the rest of the day, didn't fret
17-2: calmer, less fidgety
25-2: no anxiety or panic attacks
1-3: felt very calm until 6 pm
5-3: feel calmer
6-3: feeling calmer
9-3: noticed anxiety was less in a conversation with my husband
30-3: feeling calmer, not so all over the map
13-4: less anxiety
15-4: not feeling as rushed
18-4: feeling calmer
24-4: feel calmer, less anxious
28-4: feel calmer
3-5: less anxious
4-5: feel calmer
9-5: feeling less anxious
15-5: feeling calmer in general
27-5: much less stress
28-5: calmer for the most part
3-6: more settled
8-6: less anxious, feel calmer generally
11-6: weird how the anxiety just went away
23-6: feeling calmer
24-6: sense of calm and peace, quieter, less frantic
25-6: no anxiety attacks
28-6: positive impact: much calmer

29-6: getting calmer
30-6: calmer
2-7: felt quieter
18-7: gaining a greater overall sense of peace
25-7: still no panic or anxiety attacks
13-8: less anxiety
24-8: calm, peaceful
25-8: no more anxiety attacks
19-9: calmer
25-9: less anxiety in traffic
13-10: rarely having any panic now
30-10: don't feel as tight, less tense
25-11: no anxiety attacks
6-12: anxiety diminished
23-12: anxiety periods may be as great but don't last as long
6-13: less anxious
7-13: no longer hyper-vigilant
9-13: not noticing anxiety as much, moments only and not so overwhelmingly physical
1-14: fear disappeared***
21-14: very little anxiety
9-15: only moments of anxiety
13-15: panic attacks rare and I can breathe through them
15-15: I'm really okay with letting go – getting the guys on the job and leave'em be - that feels good to me and that's a totally new experience
13-16: anxiety diminished, minimal panic
30-16: calmer
21-18: calmer
21-21: so lack of anxiety
31-23: calm
10-24: feel calmer ... generally
31-24: not so anxious: find moments of peacefulness
15-27: calmer
16-27: anxiety down
1-39: calmer now, more together
5-98: calmer

Assertiveness (Ast)

21-9: feel assertive: dealt with an incident proportionally and as needed
12-10: competitive spirit up
6-12: less tolerant of over-extending myself
12-14: feel my assertiveness returning
4-16: standing up for myself, being more assertive
30-16: creating some boundaries: not being a doormat trying to please everyone
29-19: making boundaries
29-23: not apologizing all the time for everything***
18-26: creating boundaries, able to assert myself
1-33: able to address a problem with my hairdresser***

Coping and letting go (Cope)

25-1: feel less overwhelmed
9-3: didn't react as much
6-4: don't seem to get so upset
9-6: starting to be able to let go of things
30-6: less defensive
30-7: my "oh well" factor has increased
27-8: less fragile
29-8: not reacting as emotionally to things
30-10: not on the defense all the time
13-11: putting less pressure on myself
23-11: not reacting to things the way I used to
6-12: coping better
29-12: letting go of a lot of stuff
7-13: not worrying, being easier on myself
14-15: coping abilities improved, do not get so frustrated: as with the computer yesterday, noticed it stayed in proportion and I didn't tweak
25-15: have been able to handle situations I wasn't able to before
14-16: dealing with things as they come up
23-16: letting go of old issues
30-17: better able to manage multitasking
31-17: don't let much get to me now
21-19: more and more aware of my anxiety triggers and choosing how I will respond
23-19: letting go of old issues
23-20: not reacting
31-20: couldn't have handled this ...
15-21: even when there is a bump, I can handle it calmly without getting upset, I just deal with it and go on
30-21: haven't had a meltdown or flown off the handle
23-24: more patient with people, and when driving
31-24: a change in how I approach things: I ask myself, "Does it matter?"
16-27: letting go of a lot of old stuff
1-34: don't stay upset as long
5-39: change in how I'm handling difficulties at home
1-40: dealing with stress, it's not getting to me

Dreams (Drms)

18-3: dreaming
24-4: dreaming and remembering my dreams
28-4: dreaming
31-4: started having weird dreams
14-5: having weird, almost disturbing dreams
15-6: dreaming
18-6: a bad dream woke me
15-7: dreams
31-7: bizarre dreams
7-8: recycling dreams
18-8: dreams

31-8: strange City Hall and hairdresser dream
9-9: weird dreams
10-9: haven't had any bad dreams
13-9: having some strange dreams
7-10: unpleasant dreams
22-10: weird dreams
1-11: dreamed of mice and bugs all over the hallway – weird
10-11: nightmares are gone
18-11: more strange dreams
6-12: strange dreams
12-12: odd dreams
21-12: dreams have not been as vivid or as apparent as they used to be
2-13: weird dreams
18-15: weird dreams
13-16: bad dreams diminished
29-18: weird memory dreams with smells and feelings
1-20: odd, unusual and remembered dream
18-21: flashback dreams
31-22: having vivid, in color dreams with conversations
22-23: no more scary dreams, I woke up laughing from one dream
31-24: a lot of dreams
29-26: having weird dreams that seem significant but then forgotten by the end of the day

Energy level (NRG)

2-3: not so tired
3-3: getting more done
14-3: feeling productive
17-3: 1st session energized, 2nd session tired – went home and took a nap
16-5: very different experience – energized***
22-5: walked the last 3 of 4 days
17-6: less rest stops
22-6: out-walked my husband
23-6: feel I can accomplish more
31-6: have more energy
22-8: doing more
21-9: feel strong
16-10: better week
22-10: great physically, continue to out-walk my husband
21-12: not as exhausted
14-13: more energized
18-14: increase of activities
30-14 getting more done
17-17: more invigorated, less tired
22-17: may be over-doing it a bit
22-20: two walks yesterday
31-24: have gotten more things done in the last few months (since starting NFT) than I'd done in the last 3 years
5-31: energized but relaxed

Feeling Good/Sense of Well-being (IFG)

28-1: feel amazing – is it possible after just 1 session? Had to call to tell you***
31-1: felt elated all the next day, “Can this be real?!?”***
28-2: that feeling (of feeling amazingly good) wore off the further from the session
13-3: feeling better
24-3: feel sense of joy
1-4: feeling better
25-4: feel good, more like myself
26-4: feel good
7-5: feeling pretty good, felt really good after the last session
12-5: feeling pretty good
24-5: feeling good
7-6: feel a flow present
11-6: feeling better all around
17-6: feeling good
24-6: feel really good
7-7: feeling good
5-8: having better days
19-8: doing good
22-8: feel better generally
27-8: felt good all week
15-9: feeling really good
23-9: feeling really good
30-9: liking the way I’m feeling, just want it to be more and faster
30-10: like the way I’m feeling
13-11: feel good
29-12: feeling really good
17-13: feeling good mentally and emotionally
18-13: feeling really good, great week
17-14: getting better all the time
9-15: feel real happy these days
18-17: feeling better
1-18: felt normal for two days, like myself
10-18: getting better all the time
4-19: feeling good
18-19: just doing better
18-20: feel like I’m back, after 4 years
31-20: just feel so much better
5-21: better days
15-21: feeling really good, life is good
29-21: so much better overall
23-23: generally feeling good
18-26: feel like I felt before I got married, feel free, like I’ve broken out of prison
1-27: feel better than I have in a long time
15-27: feeling really good
22-32: Tuesday was outstanding, a really super day! Really like doing NFT
5-37: doing better
5-40: have had a great 10 days
22-41: feel good

5-46: feeling good
5-60: good week
5-67: going well until today
5-76: feel good, training is holding
23-90: just continuing to do great

Focus and Concentration (FoCo)

31-2: concentration improved
4-3: able to switch thoughts
27-4: feel sharper at work
28-4: less mind chatter
17-6: more focused
23-6: focused
23-7: more focused
24-8: focused
8-9: concentration improved
15-9: not letting things slide: addressing quickly and directly
21-9: focused and more clarity
5-10: able to sit for a whole hour on an art project
26-11: easier to concentrate
14-15: focused, centered
31-23: better concentration
8-27: ability to read and focus very improved
15-27: more focused
1-34: better able to get back on track

Functional Changes and Differences Noticed (Func)

14-3: was able to awaken without my alarm, get work accomplished
3-4: started working out
10-5: making better choices
14-5: minor compulsions lessening
9-6: went home a different way and didn't panic
23-7: easier to drive***
30-7: more productive in less time
14-8: even buying the car was so much easier***
26-8: typed on the typewriter without making mistakes***
15-9: able to speak more to the point
4-10: going back to work
12-12: golf score was lower***
25-13: my phone died and I didn't panic: within minutes came up with a couple of plans
– usually would have gotten panicky
17-14: reading again***
12-15: played a whole round of golf without smoking, putting game was good
21-15: less food cravings***

29-15: no shopping binges and smoking less, not snacking like I used to***
14-16: started taking a dance class
30-16: taking breaks
31-16: spent all day yesterday out in the yard
26-17: better able to express my thoughts
30-17: took time to take my wife on a date
31-17: I was (used to be) pretty wired, now keep more in stride
24-20: able to enjoy life and take time to relax
31-23: able to do more activities
1-25: I got a job
8-26: learning to drive
1-28: drinking less
15-32: You know, I was clean and sober for 9 years – now down to 2 drinks a day, thinking its time to quit for good***
22-41: posture improving
5-57: martial arts going well

Lifestyle Changes (LS)

11-5: haven't smoked any pot
11-6: going back to college next quarter
24-9: decided to start my own company
12-10: smoking less
23-10: started exercising
24-11: no urges to smoke or drink
14-13: thinking its time to get my own place
9-15: think I'm pregnant
14-16: ate spaghetti with chicken, tomatoes and onions: "can't believe I'm eating this!"***
8-19: started track
4-21: doing things again and enjoying them, decided to change my name***
5-28: no more bedwetting
15-29: Switched to decaf coffee – only 3 cups caffeinated this past week
23-31: 102 days sobriety and celibacy
23-43: being able to continue to work my program
23-90: psychiatrist feels NFT working well for me and now doesn't need to see me for 6 mos.

Medication Reduction (Med)

3-3: less Xanax
27-3: asked to go off all meds, only Tamoxifen to remain
29-3: guess I've quit taking Wellbutrin – none for 4 days – I just forgot
24-5: cut Seroquel to ½ dose
3-6: stopped benzos
10-6: trying lowered ½ dose of Strattera
24-12: lowered meds, off Antabuse
29-13: Lexapro about every other day – keep forgetting
29-14: have gone without my sleep medication for a week now

4-17: stopped Prozac
1-18: stopped taking lorazepam (Ativan)
5-19: tried 1 day without my meds – not so good
23-20: lowered meds
8-23: down to half dose of Ritalin and none on the weekends
8-25: no more meds
1-26: went off all benzos
1-27: went off my hormones
5-30: reduced meds
10-33: continuing to reduce meds
22-36: forgot to say I had discontinued the Parkinson's medication and am starting glutathione
23-41: lowered meds
5-42: off meds

Mental Processes, Thinking and Memory (MPTM)

31-1: the (mental) clarity: such a good day
18-3: remembering more and more about what happened
18-4: thinking a lot
2-5: remembering a lot
18-5: remembering and reliving past hurts
2-6: thinking more clearly, like I can think about it more and think about the answer to make sure it's correct
26-6: thinking a little sharper maybe
18-7: having wonderful memories
26-8: remembering events from childhood
29-8: thinking a lot more clearly
26-10: didn't get lost driving in Seattle
26-12: can sequence chronologically my addresses and schools from birth to going into the Navy
27-12: increased creativity
6-13: thinking clearly***
27-14: memory improving
30-14: problem solving getting better
10-18: notice I feel clearer at the end of a session
18-18: memories now crisp, remembrances clearer easier
29-18: not over analyzing
30-32: can explain my thought process: able to formulate a plan and articulate it

Mood Changes (Mood)

4-2: felt better for awhile
29-2: I had some good days: things have smoothed out some
4-3: laugh returned***
14-4: mood has stayed good
18-4: feeling happier
4-5: crying less
6-5: feeling mellower: more grounded, more optimistic

10-5: things have been more positive
11-5: mood improved
21-5: feel even
2-6: not as moody
17-6: improving
28-6: much happier
31-6: pretty good mood
7-7: more on even keel!***
18-7: feeling more neutral
19-8: less moody
27-8: better disposition
28-8: feel better this week than last
31-8: mood good
7-9: felt my heart open and a heavy weight lifted***
8-9: mood better
21-9: less teary
22-9: not depressed***
4-10: crying less
12-10: mood better
21-10: not so many tears outside of session
14-12: mood improving
6-13: less depressed
12-13: mood improving
14-13: mood feels more manageable, at first I felt I had to go back, now more manageable and not having a negative attitude
15-13: more even keeled
21-14: feeling joy and elation
28-14: I've found myself whistling and humming – that's unheard of!
12-15: mood, only sad occasionally now
14-15: the biggest difference I've noticed so far is in my mood, I'm feeling more the way I'm supposed to feel
27-15: no longer depressed
1-16: feel good, mood improving
13-16: depression has lifted
18-17: happy
24-17: feel much better, generally chipper now
13-18: not depressed, happy
14-19: hopeful
5-22: feel good and happy
10-24: happier generally and mood swings are less noticeable
10-26: mostly good mood
23-41: feel brighter, good, more up
5-46: less mood swings
5-98: happy
5-108: no January slump this year

Motivation (Mot)

3-2: feeling more motivated
18-2: felt more motivated

17-3: feel motivated to be motivated
4-5: thinking about the future
3-7: much more motivated
4-9: thinking about going back to work
17-9: motivation up but still not quite where I want it to be
12-12: considering getting my real estate license
6-13: more motivated
12-15: motivation up
30-16: working toward goals
22-17: have good ambition
18-18: motivated
22-22: continue to feel ambitious then go too hard

Organization (Org)

15-5: less over scheduling
26-6: seem to be getting more organized***
15-7: less cluttered
30-8: noticing I'm becoming more organized
15-10: not feeling as scattered
2-15: being able to be more organized
15-19: organizing: designed a system for tracking my work and work orders
15-27: less scattered, keeping things more orderly and together
30-32: prioritizing
1-40: more organized

Other People Notice (OPN)

27-2: husband noticed a difference in me: calmer, softer
14-5: mother noticing changes in me
30-5: wife thanks you for the new me, says I'm not barking at her
29-7: husband noticing good changes
6-12: husband says I'm getting better
29-18: husband says I am walking differently and carrying myself differently
8-19: Mom says I'm acting more mature
15-27: My guys say I'm not getting upset or angry like I used to, and I laugh a lot more
23-50: my Dad says there's been a tremendous change in me overall
23-100: my sponsor says she's never seen such rapid healing acknowledging NFT w/program; asked me to present at AA convention

Physical health (Phys)

31-1: Tuesday not as bothered by pain, it was less intense
27-2: less hot flashes and less intense
31-2: Pain reduced from an 8 or 9 to 4 or 5
13-3: only 1 migraine since starting
27-4: less hot flashes

31-4: No fibromyalgia pain 'til Friday (4 days after session)
27-5: less pain
22-6: no back or hip pain
31-6: pain has diminished quite a bit
27-7: rare hot flashes
29-7: eating less***
22-8: no aches or pains:
22-9: feel great – no aches or pains
31-9: fibro pain less
31-10: Have been almost symptom free since we started
22-11: hand tremors diminished
14-12: finding myself eating more regularly and drinking water***
17-13: no headaches lately***
13-15: vertigo much less
21-15: no PMS symptoms**
17-17: feeling better physically now, too
29-19: losing weight***
13-21: vertigo not so bad
22-23: hand trembling continues to be less
31-23: less pain
18-26: losing weight***
5-46: appetite up and gaining weight
5-89: no asthma this fall***
5-98: eating better

Relationship Changes (Rlshp)

18-1: did open up to my husband after about my fears, anxieties and vulnerabilities, it felt safer
17-2: more gregarious: lasted into the early evening
9-4: big change overnight: felt anxiety to husband's impatience and instead of reacting, responded: we talked, no anger, worked it through and it was done***
29-4: able to talk to my Dad in a different way***
30-5: better able to carry on a normal conversation and really communicate
18-6: interested in making healthy friendships
28-6: marveling at how I am dealing with people
1-11: able to talk to my husband in a way that worked***
14-14: socializing more
21-15: I am being able to listen without needing to fix or take responsibility***
23-16: reassessing relationships
29-17: changing how I interact and relate to people
23-19: reassessing relationships (continuing)
1-22: in discussion with my husband there was no blaming
29-22: more aware of dysfunctional dynamics in interactions with coworkers and family
1-27: relationship with husband improving

Relaxed (Relax)

6-1: felt more relaxed for awhile
16-1: feel so much more relaxed than when I came in
24-1: feel relaxed
29-1: this is relaxing
6-2: relaxed
9-2: felt relaxed
16-2: felt good, relaxed, slept in
25-2: more relaxed
2-3: relaxed
16-3: sense of relaxation lasted the rest of the afternoon
1-4: felt relaxed when I left here, lasted into evening
16-4: feeling of relaxation lasting a bit longer
27-4: more relaxed
6-5: feeling mellower: more grounded
21-5: relaxed
16-6: Have felt really good and relaxed the last few days
22-7: noticing I always feel more relaxed after a session
15-8: took a day off, read a book and had a great nap
24-8: relaxed
14-13: more relaxed and energized
15-13: more relaxed and
30-16: more able to relax

School (Sch)

2-4: faster answering questions in class
8-7: school going better
2-9: math homework done before out of class today!***
10-12: had a good week at school
25-12: finals were much easier than midterms: not so stressed out, just did it – really a big difference – didn't go through the thinking "oh dear, I'm so stressed" not as intense, almost could write it off
10-13: card has been only green or yellow at school
2-17: math easier***
8-19: math improved, much better at writing
8-20: school going smoothly, everything going smoothly
8-25: schoolwork and homework going better
8-27: 3.3. GPA***
5-32: school was good
5-48: good day at school
5-68: feel very good doing schoolwork today
5-91: school is good, I'm sure glad my ADHD is under control

Sleep (Sleep)

23-1: slept well
31-1: Slept well, better than in months, woke up wide awake

20-2: slept through the night
 25-2: fell asleep a little earlier and didn't wake up as frequently
 28-2: sleep improved: better than in a long time
 31-2: Quality of sleep improved but not as great as the first night
 1-3: Last few nights sleeping better
 5-3: slept in my own room 3 nights
 7-3: slept last night 6.5 hrs –hasn't happened in years!
 10-3: sleeping better
 16-3: sleep improving
 20-3: woke up happy from nap
 21-3: that night too jazzed up and couldn't get to sleep until midnight, then slept really hard and it was difficult to get up: next day really good and that night had a great sleep
 27-3: sleeping better
 11-4: able to fall asleep and sleep well
 19-4: starting to sleep better
 20-4: sleeping better and less waking up screaming
 22-4: got up 1 hr earlier w/o being called: slept well
 28-4: sleep more soundly
 2-5: sleeping better
 5-5: sleep improving
 7-5: sleep improving
 20-5: only 1 incident of waking up and crying and calmed quickly
 27-5: sleeping better
 7-6: sleep improving – even overslept!
 15-6: sleep improving
 18-6: didn't sleep very well
 19-6: sleeping
 20-6: no more problems, seems happy
 22-6: sleeping well, restful sleep
 25-6: getting to sleep easier
 31-6: sleep good
 19-7: sleeping better
 22-7: had 1 restless night: got up for awhile, back to bed and woke up at regular time feeling fine
 27-7: sleep improved, feels luxurious
 29-7: sleep improving
 30-7: sleeping better
 4-8: slept last night***
 7-8: longer periods of sleep w/shorter periods of wakefulness
 16-8: sleep continues to get better generally, six straight hours last night
 19-8: slept really good last night
 25-8: sleeping straight through
 31-8: sleep definitely good since starting
 19-9: slept like a rock last night
 22-9: another night session, got up and sat in the chair, restless, then back to bed and woke up feeling fine
 25-9: sleeping really well, 2 nights went to bed before midnight and slept through until 7am - really different for me
 31-9 sleep continues to be good
 7-10: insomnia improved from severe to mild

25-10: Last night I didn't sleep very well. I kept waking up and it made me realize how much my sleep had changed because that was the first time in a long time that had happened.

1-11: sleep improving

13-11: sleep improving now

16-11: feels like sleep patterns are getting better

19-11: going to sleep easier now

25-11: sleep continues to be good

13-12: sleeping better

14-12: sleeping more and more restful

16-12: good sleep, slept straight through

22-12: waking up energetic

14-13: sleep getting better

16-13: This last week – sleeping longer but not all the way through

16-14: sleep has been better this week, even slept through the wind and rain last night

10-15: sleep is much better

16-15: sleep improving: more restful, didn't nap to or from Seattle on the boat

27-15: sleeping well and

29-15: no problems falling asleep – very odd for me;

5-16: going to bed and sleeping in my own room all night

19-16: sleeping well

19-17: sleeping well

5-18: continue to sleep in my own room

15-19: sleep vastly improved now

15-20: sleep has continued to be better than it has for a very long time

30-20: sleep improving

30-21: no trouble sleeping

15-26: sleep continues to be good

5-98: sleeping better

Self Awareness (S/Aw)

24-2: had a spiritual revelation

16-3: have been realizing the last couple of days how much the anxiety affects my mood – didn't realize that before***

29-3: Noticing how anxiety feels, anger and anxiety appear, I get a bit manic, then feelings dissipate, compartmentalizing

7-4: some I think, it's subtle

8-4: able to speak better, more articulate, better vocabulary

16-4: having more insights

21-4: felt hypersensitive to light, sound & touch

6-5: increased self confidence

7-5: breaking old patterns***

8-5: Feel less hyper

9-5: Not editing myself so much

3-6: reassessment of life

9-6: went home a different way and didn't panic

12-6: can't say that I've noticed a change so far

21-6: more comfort with self honesty

30-6: less defensive; notice I need to stop interrupting***

8-7: more sure of myself
 29-7: increased self-awareness
 6-8: things are changing; need friends
 28-8: felt different levels of consciousness
 7-9: thinking about old stuff and how far I've come
 9-9: giving myself permission to transform, letting go of trauma and loss
 7-10: feel an appreciation of self
 9-10: letting myself feel my feelings; (becoming aware of) what I want to do: becoming aware of how I can be
 21-10: more aware; feeling my feelings
 28-10: having some personal revelations: do love myself; releasing hate and fear
 9-11: compulsions less active: not obsessing, tics diminished
 24-11: no negative self-talk; no doubts.
 9-13: OCD trends – pretty non-existent
 31-14: did poorly missing a week
 6-15: I've got it now
 8-15: Really not feeling any of the ADHD stuff!
 14-16: starting to sort out the reality of a situation from my fears & fantasies
 23-16: change of outlook
 25-16: feel like I'm good to go
 4-17: there's been an emotional shift
 18-17: more aware of feelings
 29-17: new insights and awareness'
 30-17: letting the other person finish their thought before starting to talk
 14-18: OCD stuff receding: rituals, less sensitive to taste and texture
 21-18: increasing self confidence; not bitter
 13-19: not slipping back between sessions, all symptoms vastly diminished
 23-19: change of outlook
 29-19: I don't have the same urges; so many self-discoveries***
 14-20: making changes – will come back for tune-ups if I need them
 23-20: letting go of my attachment to chaos & drama
 29-21: feel self-confident; epiphany of what I want to do
 29-22: feel myself becoming an adult and
 29-23: I'm cured, I'm bored – no drama
 8-26: really don't feel ADHD anymore
 15-27: well, it's been 4 months, when I've thought about this, it is holding
 16-27: re-evaluating, through all the efforts I'm making: enthusiasm is up and
 1-28: able to notice my anxiety response to certain events
 16-30: letting go of old tapes, felt like guiding myself through a dream
 30-32: don't feel I am getting walked on so badly
 1-40: respond differently; I've changed, I look at things differently,
 5-73: was grumpy when I came in but now happy
 5-100: 5 weeks w/o session before feeling like I needed one
 5-118: Asked Mom to make appt; know I needed it; instead of everything being easy, I was starting to struggle and get in trouble

Non-specific Awareness of Change (N-S)

31-2: changes, subtle but noticeable
 30-3: something is different, can't quite tell what it is

10-5: something has changed
19-14: nothing specific but getting better in general
21-14: good things happening
30-14: not just surviving anymore but not yet to thriving
17-17: a lot has changed
13-18: things going well
31-18: since I've been coming here my life is really different

APPENDIX C

Responses of Clients by Session

Responses of clients by session to the question:
“Have you noticed any effects since your last visit that you think might be related to
your training?”
by meaning units

Session 1

4-1: feel calmer
6-1: felt more relaxed for awhile
16-1: feel so much more relaxed than when I came in
18-1: felt more peaceful,
18-1: did open up to my husband after (it felt safer) about my fears, anxieties, and vulnerabilities
23-1: felt calm for the rest of the day
23-1: and slept well;
24-1: feel relaxed
25-1: feel less overwhelmed
27-1: feel mind quieting
28-1: feel amazing - had to call to tell you
29-1: this is relaxing
31-1: Can this be real?!
31-1: Slept well, better than in months, woke up wide awake
31-1: The clarity: such a good day
31-1: Felt elated all the next day
31-1: Tuesday not as bothered by pain, it was less intense

Session 2

1-2: more anxious this last week than in a long time
3-2: feeling more motivated
4-2: felt better for awhile
6-2: relaxed
9-2: felt relaxed
14-2: calmer in general
15-2: felt very calm for the rest of the day
15-2: didn't fret
16-2: felt good
16-2: relaxed
16-2: slept in
17-2: calmer
17-2: less fidgety,
17-2: more gregarious: lasted into the early evening
18-2: felt more motivated and
18-2: encouraged
20-2: -slept through the night
24-2: had a spiritual revelation
25-2: more relaxed,
25-2: fell asleep a little earlier and didn't wake up as frequently;
25-2: no anxiety or panic attacks
27-2: less hot flashes and less intense;
27-2: Husband noticed a difference in me: calmer, softer

28-2: that feeling (of feeling amazingly good) wore off the further from the session
28-2: sleep improved: better than in a long time
29-2: I had some good days
29-2: things have smoothed out some
31-2: changes subtle but noticeable
31-2: Quality of sleep improved but not as great as that first night
31-2: Concentration improved
31-2: Pain reduced from an 8 or 9 to 4 or 5

Session 3

1-3: felt very calm until 6 pm,
1-3: Last few nights sleeping better
2-3: relaxed,
2-3: not so tired
3-3: getting more done,
3-3: less xanax
4-3: ***laugh returned,
4-3: able to switch thoughts
5-3: slept in my own room 3 nights,
5-3: feel calmer
6-3: feeling calmer
7-3: slept last night 6.5 hrs -hasn't happened in years!
9-3: noticed anxiety was less in a conversation w/ my husband,
9-3: didn't react as much
10-3: sleeping better
13-3: only 1 migraine since starting,
13-3: feeling better
14-3: feeling productive,
14-3: was able to awaken w/o alarm,
14-3: work accomplished
16-3: sleep improving,
16-3: sense of relaxation lasted the rest of the afternoon.
16-3: ***Have been realizing the last couple of days how much the anxiety affects my mood - didn't realize that before
17-3: 1st session energized, 2nd session tired - went home and took a nap.
17-3: Feel motivated to be motivated
18-3: dreaming,
18-3: remembering more and more about things that happened
20-3: woke up happy from nap
21-3: that night too jazzed up and couldn't get to sleep until midnight, then slept really hard and it was difficult to get up;
21-3: next day really good and that night had a great sleep
24-3: feel sense of joy
27-3: asked to go off all meds, only Tamoxifen to remain
27-3: sleeping better
29-3: guess I've quit taking Wellbutrin - none for 4 days - forgot.
29-3: Noticing how anxiety feels, anger and anxiety appear, I get a bit manic, then feelings dissipate, compartmentalizing
30-3: something is different, can't quite tell what it is
30-3: feeling calmer, not so all over the map

Session 4

1-4: felt relaxed when I left here, lasted into evening,
1-4: feeling better
2-4: faster answering questions in class
3-4:- started working out
6-4: don't seem to get so upset
7-4: some I think, it's subtle
8-4: able to speak better: more articulate, better vocabulary
9-4: ***big change overnight: felt anxiety to husband's impatience and instead of reacting, responded; we talked, no anger, worked it through and it was done
11-4: able to fall asleep and sleep well
13-4: less anxiety
14-4: mood has stayed good
15-4: Not feeling as rushed
16-4: Feeling of relaxation lasting a bit longer,
16-4: having more insights
18-4: feeling calmer, happier,
18-4: thinking a lot
19-4: starting to sleep better
20-4: sleeping better and less waking up screaming
21-4: felt hypersensitive to light, sound & touch
22-4: slept well,
22-4: got up 1 hr earlier w/o being called
24-4: feel calmer, less anxious;
24-4: dreaming & remembering my dreams
25-4: I am feeling more like myself
26-4: feel good
27-4: more relaxed,
27-4: less hot flashes,
27-4: feel sharper at work
28-4: feel calmer,
28-4: less mind chatter,
28-4: sleep more soundly,
28-4: dreaming
29-4: ***able to talk to my Dad in a different way
31-4: No fibromyalgia pain 'til Friday (4 days after session)
31-4: started having weird dreams

Session 5

2-5: sleeping better,
2-5: remembering things
3-5- less anxious
4-5- feel calmer
4-5: crying less
4-5: thinking about the future
5-5: something about my temper is changing
5-5: sleep improving
6-5: feeling mellower
6-5: more optimistic
6-5: more grounded
6-5: increased self confidence

7-5: sleep improving,
7-5: feeling pretty good, felt really good after last session,
7-5: ***breaking up old patterns
8-5: feel less hyper
9-5: Not editing myself so much
9-5: feeling less anxious
10-5 something has changed;
10-5: making better choices,
10-5: things have been more positive
11-5: haven't smoked any pot,
11-5: mood improved
12-5: feeling pretty good
14-5: mother noticing changes in me
14-5: having weird, almost disturbing dreams
14-5: minor compulsions lessening
15-5: Feeling calmer in general
15-5: less over-scheduling
16-5:*** very different experience - energized
18-5: remembering and reliving past hurts
20-5: only 1 incident of waking up crying and calmed quickly
21-5: feel even
21-5: relaxed
22-5: walked last 3 of 4 days
24-5: feeling good
24-5: cut Seroquel to 1/2 dose
27-5: less pain
27-5: much less stress
27-5: improved coping ability
27-5: sleeping better
28-5: calmer for the most part
28-5: softer demeanor in dealing with people
30-5: Wife thanks you for the new me: says I'm not barking at her
30-5: better able to carry on a normal conversation, really communicate
30-5: not so irritable or overly wound up

Session 6

2-6 - thinking more clearly, like I can think about it more and think about the answer to make sure it's correct
2-6: not as moody
3-6: more settled,
3-6: reassessment of life
3-6: stopped benzos
7-6: sleep improving - even overslept!
7-6: Feel a flow present
8-6- feel calmer generally
9-6: starting to be able to let go of things;
9-6: went home a different way and didn't panic
10-6: trying lowered .5 dose of Strattera
11-6: feeling better all around,
11-6: going back to college next quarter,
11-6: weird how the anxiety just went away

12-6: can't say that I've noticed a change so far
15-6: Sleep improving,
15-6: dreaming
16-6: Have felt really good and relaxed the last few days
17-6 :Feeling good,
17-6: improving,
17-6: more focused,
17-6: less rest stops
18-6: didn't sleep very well,
18-6: a bad dream woke me,
18-6: interested in making healthy friendships
19-6: sleeping
20-6: no more problems, seems happy
21-6: more comfort with self honesty
22-6: sleeping well, restful sleep;
22-6: no back or hip aches,
22-6: out walked husband
23-6 - feeling calmer,
23-6: focused,
23-6: feel I can accomplish more
24-6: feel really good:
24-6: sense of calm & peace;
24-6: pent up anger & frustration gone
24-6: quieter, less frantic
25-6: getting to sleep easier,
25-6: no anxiety attacks
26-6: seem to be getting more organized,
26-6: thinking a little sharper maybe
28-6: positive impact, much calmer,
28-6: much happier,
28-6: marveling at how I am dealing with people
28-6: pent up anger & frustration gone,
29-6: getting calmer
30-6: calmer,
30-6: less defensive,
30-6 less flare-ups
30-6: ***notice I need to stop interrupting
31-6: sleep good
31-6: pretty good mood
31-6: have more energy
31-6: pain has diminished quite a bit

Session 7

2-7: felt quieter
3-7: much more motivated
4-7: ***-want to forgive my cheating husband instead of kill him
7-7: ***more on even keel!
7-7: Feeling good
8-7: school going better,
8-7: less anxious,
8-7: more sure of myself

15-7: dreams
15-7: less cluttered
18-7: gaining a greater overall sense of peace,
18-7: feeling more neutral,
18-7: having wonderful memories
19-7: sleeping better
22-7: noticing I always feel more relaxed after a session;
22-7: had 1 restless night: got up for awhile, back to bed and woke up at regular time
feeling fine
23-7: ***easier to drive
23-7: more focused
25-7: still no panic or anxiety attacks
27-7: rare hot flashes - seem triggered by stress;
27-7: sleep improved, feels luxurious
29-7: Husband noticing good changes,
29-7: increased self-awareness,
29-7: eating less
29-7: sleep improving
30-7: my "o-well" factor has increased,
30-7: sleeping better,
30-7: more productive in less time
31-7: bizarre dreams

Session 8

4-8: ***slept last night
5-8: having better days
6-8: Things are changing;
6-8: need friends
6-8: (I'm) nicer, not so grouchy
7-8: longer periods of sleep w/ shorter periods of wakefulness
7-8: recycling dreams
13-8: less anxiety
14-8: *** even buying the car was so much easier
15-8: took a day off, read a book and had a great nap
16-8: Sleep continues to get better generally, six straight hours last night
18-8: dreams
19-8: slept really good last night
19-8: less moody
19-8: doing good
22-8: feel better generally
22-8: no aches or pains
22-8: doing more
24-8: calm, peaceful
24-8: relaxed
24-8: focused
25-8: no more anxiety attacks
25-8: sleeping straight through
26-8: remembering events from childhood,
26-8: ***typed on typewriter w/o making mistakes
27-8: better disposition,
27-8: less fragile,

27-8: felt good all week
28-8: felt different levels of consciousness,
28-8: feel better this week than last
29-8: thinking a lot more clearly,
29-8: not reacting as emotionally to things
30-8: noticing I'm becoming more organized
31-8: sleep definitely good since starting
31-8: strange City Hall-hairdresser dream
31-8: mood good

Session 9

2-9: ***math homework done before out of class today!
4-9: thinking about going back to work
7-9: ***Felt my heart open and a heavy weight lifted
7-9: thinking about old stuff and how far I've come
8-9: mood better
8-9: concentration improved
9-9: weird dreams
9-9: giving myself permission to transform
9-9: letting go of trauma and loss
10-9: haven't had any bad dreams
13-9: having some strange dreams
15-9: feeling really good
15-9: able to speak more to the point
15-9: not letting things slide: addressing quickly and directly
17-9: Motivation up, but still not quite where I want it to be
19-9: calmer
19-9: slept like a rock last night
21-9: more clarity
21-9: less anger
21-9: less teary
21-9: feel assertive
21-9: strong
21-9: focused
21-9: dealt with an incident proportionally & as needed
22-9: another night session, got up and sat in the chair, restless
then back to bed and woke up feeling fine
22-9: feel great - no aches or pains
22-9: ***not depressed
23-9: feeling really good
24-9: decided to start my own company
25-9: less anxiety in traffic
25-9: sleeping really well, 2 nights went to bed before midnight and slept through until 7
- really different for me
30-9: liking the way I'm feeling, just want it to be more and faster
31-9: fibro pain less
31-9: sleep continues to be good

Session 10

4-10: crying less
4-10: going back to work

5-10: temper better
5-10: able to sit for a whole hour on an art project
7-10: feel an appreciation of self
7-10: unpleasant dreams
7-10: insomnia improved from severe to mild
9-10: becoming aware of how I can be
9-10: (becoming aware of) what I want to do
9-10: letting myself feel my feelings
12-10: mood better
12-10: competitive spirit up
12-10: smoking less
13-10: rarely having any panic now
15-10: Not feeling as scattered
16-10: better week
21-10: not so many tears outside of session
21-10: more aware
21-10: feeling my feelings
22-10: weird dreams
22-10: great physically, continue to out walk husband
23-10: started exercising
25-10: Last night I didn't sleep very well. I kept waking up and it made me realize how much my sleep had changed because that was the first time in a long time that had happened.
26-10: didn't get lost driving in Seattle
28-10: having some personal revelations: do love myself releasing hate and fear
30-10: Don't feel as tight
30-10: like the way I'm feeling
30-10: not on the defense all the time
31-10: Have been almost symptom free since we started

Session 11

1-11:*** able to talk to my husband in a way that worked.
1-11: Dreamed of mice and bugs all over the hallway - weird.
1-11: Sleep improving
9-11: not obsessing
9-11: tics diminished
9-11: compulsions less active
10-11: nightmares are gone
13-11: Sleep improving now
13-11: putting less pressure on myself
13-11: feel good
16-11: Feels like sleep patterns are getting better
18-11: more strange dreams
19-11: going to sleep easier now
22-11 - hand tremors diminished
23-11 - not reacting to things the way I used to
24-11- no urges to smoke or drink
24-11: no doubts
24-11: no negative self talk

25-11: sleep continues to be good
25-11: no anxiety attacks
26-11: easier to concentrate
26-11: feel stronger physically

Session 12

6-12: less tolerant of over-extending myself,
6-12: husband says I'm getting better,
6-12: anxiety diminished,
6-12: coping better,
6-12: strange dreams
10-12: had a good week at school
12-12: ***golf score lower,
12-12: odd dreams,
12-12: considering getting real estate license
13-12: sleeping better
14-12: mood improving,
14-12: find myself eating more regularly and drinking water,
14-12: sleeping more and more restful
16-12: Good sleep, slept straight through
21-12: dreams have not been as vivid or as apparent as they used to be;
21-12: not as exhausted
22-12: waking up energetic
23-12: anxiety periods may be as great but don't last as long
24-12: lowered meds, off Antabuse
25-12: finals were much easier than midterms: not so stressed out, just did it - really a big difference - didn't go through the thinking "oh dear, I'm so stressed" not as intense, almost could write it off
26-12: can sequence chronologically my addresses and schools from birth to going into the Navy
27-12: increased creativity
29-12: feeling really good; letting go of a lot of stuff

Session 13

2-13: weird dreams
6-13: less anxious,
6-13: less depressed,
6-13: ***thinking clearly
6-13: more motivated
7-13- easier on myself,
7-13: not worrying,
7-13: no longer hyper-vigilant
9-13: OCD trends – pretty non-existent,
9-13: not noticing anxiety as much, moments only and not so overwhelmingly physical.
10-13: card has been only green or yellow at school
12-13: mood improving
14-13: sleep getting better
14-13: more relaxed and energized
14-13: mood feels more manageable, at first I felt I had to go back, now more manageable & not having a negative attitude
14-13: thinking its time to get my own place

15-13: more relaxed
15-13: (more) even keeled
16-13: This last week - sleeping longer but not all the way through
17-13: Feeling good mentally and emotionally
17-13: ***no headaches lately
18-13: feeling really good, great week
25-13: my phone died and I didn't panic. Within minutes came up with a couple of plans - usually would have gotten panicky
29-13: Lexapro every other day - keep forgetting

Session 14

1-14: *** fear disappeared
12-14: feel my assertiveness returning
14-14: socializing more
16-14: Sleep has been better this week, even slept through the wind and rain last night
17-14: getting better all the time,
17-14: ***reading again
18-14: releasing anger,
18-14: increase of activities
19-14: nothing specific but getting better in general
21-14: good things happening,
21-14: very little anxiety,
21-14: feeling joy and elation
27-14: memory improving
28-14: I've found myself whistling and humming - that's unheard of!
29-14: I've gone without sleep medication for a week now
30-14: not just surviving anymore but not yet to thriving,
30-14: problem solving getting better and
30-14: getting more done
31-14: did poorly missing a week

Session 15

2-15: being able to be more organized
6-15: I've got it now
8-15: Really not feeling any of the ADHD stuff!
9-15- only moments of anxiety
9-15: think I'm pregnant
9-15: really feel happy these days
10-15: sleep is much better
12-15: sad only occasionally now
12-15: mood (up) [&]
12-15: motivation are up
12-15: ***played a whole round of golf w/o smoking, putting game was good!
13-15: vertigo much less
13-15: panic attacks rare - can breathe through
14-15: biggest difference I've noticed so far is in my mood: I'm feeling more the way I am supposed to feel.
14-15: coping abilities improved
14-15: do not get so frustrated: as with computer yesterday, noticed it stayed in proportion and I didn't tweak

14-15: centered
14-15: focused
15-15: ***I'm really okay w/ letting go - getting the guys on the job & leave'em be - that feels good to me and that's a totally new experience
16-15: Sleep improving: more restful, didn't nap to or from Seattle on the boat
18-15: weird dreams
21-15: less food cravings***,
21-15: no PMS symptoms***
21-15: I am being able to listen without the need to fix or take responsibility***
25-15: have been able to handle situations I wasn't able to before
27-15: sleeping well and
27-15: no longer depressed
29-15: no problems falling asleep - very odd for me;
29-15: ***smoking less,
29-15: not snacking like I used to;
29-15: no shopping binges

Session 16

1-16: feel good, mood improving
4-16: standing up for my self, more assertive
5-16: going to bed and sleeping in my own room all night
13-16: depression has lifted,
13-16: bad dreams diminished,
13-16: anxiety diminished, minimal panic
14-16: started taking a dance class;
14-16: dealing with things as they come up and
14-16: starting to sort out the reality of a situation from my fears & fantasies;
14-16: ***ate spaghetti with chicken, tomatoes and onions: "can't believe I'm eating this!"
19-16: sleeping well
23-16: letting go of old issues,
23-16: change of outlook,
23-16: reassessing relationships
25-16: feel like I'm good to go
30-16: calmer,
30-16: more able to relax,
30-16: working towards goals:
30-16: taking breaks,
30-16: not being a doormat trying to please everyone,
30-16: creating some boundaries
31-16: spent all day yesterday out in the yard

Session 17

2-17: *** math easier
4-17: there's been an emotional shift
4-17: stopped Prozac
17-17: Feeling better physically now
17-17: less tired
17-17: more invigorated
17-17: a lot has changed
18-17: feeling better

18-17: happy
18-17: more aware of feelings
19-17: sleeping well
19-17: temper calmer
22-17: have good ambition
22-17: maybe overdoing it a bit
24-17: feel much better, generally chipper now
26-17: better able to express my thoughts
29-17: new insights and awareness'
29-17: hanging how I interact and relate to people
30-17: better able to manage multitasking
30-17: took time to take wife on a date
30-17: letting the other person finish their thought before starting to talk
31-17: Don't let much get to me now
31-17: I was pretty wired, now keep more in stride

Session 18

1-18: felt "normal" for 2 days, like myself
1-18: stopped taking lorazepam (Ativan)
5-18: continue to sleep in my own room
10-18: feeling good
10-18: notice I feel clearer at the end of the session
13-18: things going well
13-18: not depressed - happy
14-18: OCD stuff receding: rituals
14-18: less sensitive to taste and texture
14-18: getting better all the time
18-18: memories now crisp, remembrances clearer, easier
18-18: motivated
21-18: calmer
21-18: anger mostly gone
21-18: not bitter
21-18: increasing self confidence
29-18: weird memory dreams with smells and feelings
29-18: not over analyzing
29-18: husband says I'm walking differently and carrying myself differently
31-18: Since I've been coming here my life is really different

Session 19

5-19: 1 day w/o meds - not so good
8-19: math improved, much better at writing
8-19 Mom says I'm acting more mature
8-19: started track
18-19: stopped meds
13-19: not slipping back between sessions
13-19: all symptoms vastly diminished
14-19: feeling good
14-19: hopeful
15-19: Sleep vastly improved now
15-19: organizing: designed a system for tracking my work & work orders
18-19: just doing better

21-19: more and more cognizant of anxiety triggers and
21-19: choosing how I will respond
23-19: letting go of old issues
23-19: change of outlook
23-19: reassessing relationships (continuing)
29-19: ***so many self discoveries
29-19: ***losing weight
29-19: don't have the same urges
29-19: making boundaries

Session 20

1-20: odd, unusual and remembered dream
8-20: school going smoothly, everything going smoothly
14-20: making changes - will come back for tune-ups if I need them
15-20: Sleep has continued to be better than it has for a very long time
18-20: feel like I'm back, after 4 years!
22-20: 2 walks yesterday
23-20: lowered meds
23-20: letting go of my attachment to chaos & drama
23-20: not reacting
24-20: more patience with people, driving.
24-20: Able to enjoy life, take time to relax
30-20: sleep improving
31-20: Just feel so much better
31-20: couldn't have handled dental appointment for root canal – last time was out for four days – not this time

Session 21

4-21: *** doing things again and enjoying them
4-21: decided to change my name
5-21: better days
13-21: vertigo not so bad
15-21 Feeling really good, life is good
15-21: even when there is a bump, I can handle it calmly w/o getting upset: just deal with it & go on
18-21: flashback dreams
21-21: so lack of anxiety
29-21: feel self-confident
29-21: so much better overall
29-21: epiphany of what I want to do
30-21: no trouble sleeping
30-21: haven't had a meltdown or flown off the handle

Session 22

1-22:***in discussion with husband there was no blaming
5-22: feel good and happy
22-22: continue to feel ambitious - then go too hard
29-22: feel myself becoming an adult and
29-22: more aware of dysfunctional dynamics in interactions
31-22: Having vivid, in color dreams with conversation

Session 23

8-23: down to half dose of Ritalin and none on the weekends
22-23: no more scary dreams; I woke up laughing from one dream
22-23: hand trembling continued to be less
23-23: generally feeling good
23-23: stable
23-23: following through
29-23: ***Not apologizing all the time for everything
29-23: I'm cured, I'm bored - no drama
31-23: able to do more activities
31-23: less pain
31-23: better concentration
31-23: calm

Session 24

10-24: feel calmer and happier generally and
10-24: mood swings are less noticeable
31-24: Have gotten more things done in the last few months than I'd done in the last 3 years
31-24: a lot of dreams
31-24: not so anxious
31-24: find moments of peacefulness
31-24: a change in how I approach things, I ask myself, "Does it really matter?"

Session 25

1-25: I got a job
8-25: schoolwork and homework going better, no more meds

Session 26

1-26: went off all benzos
8-26: really don't feel ADHD anymore;
8-26: learning to drive
10-26: - mostly good mood
15-26 Sleep continues to be good
18-26: feel like I felt before married, feel free like I've broken out of prison,
18-26: losing weight,
18-26: creating boundaries,
18-26: able to assert myself
29-26: having weird dreams that seem significant but then forgotten by the end of the day

Session 27

1-27: feel better than I have in a long time;
1-27: went off my hormones,
1-27: relationship with husband improving
8-27: ability to read and focus very improved!
8-27: ***3.3 GPA
15-27: Well, it's been 4 months (since I was last in), when I've thought about this, it is holding
15-27: feeling really good
15-27: less scattered
15-27: calmer

15-27: more focused
15-27: keeping things more orderly & together
15-27: My guys say I'm not getting upset or angry like I used to and I laugh a lot more
16-27: letting go of a lot of old stuff,
16-27: re-evaluating, through all the efforts I'm making,
16-27: enthusiasm is up and
16-27: anxiety down

Sessions 28-39

1-28: drinking less;
1-28: able to notice my anxiety response to certain events
5-28: no more bedwetting
15-29: Switched to decaf coffee - only 3 cups caffeinated this past week
5-30: reduced meds
16-30: letting go of old tapes, felt like guiding myself through a dream
5-31: energized but relaxed
23-31: 102 days sobriety and celibacy
5-32: school was good
15-32: You know, I was clean and sober for 9 years - now down to 2 drinks a day, thinking it's time to quit for good
22-32: Tuesday was outstanding, a really super day! Really like doing NFT
30-32: able to formulate plan and articulate it,
30-32: can explain my thought process;
30-32: don't feel I am getting walked on so badly,
30-32: prioritizing
1-33: ***able to address a problem with my hairdresser
10-33: continuing to reduce meds
1-34: -Don't stay upset as long,
1-34: better able to get back on track
22-36: forgot to say I had discontinued the Parkinson's meds; starting glutathione
5-37: doing better
1-39: calmer now, more together
5-39: change in handling difficulties at home

Sessions 40 - 50

1-40: more organized,
1-40: dealing with stress, it's not getting to me;
1-40: I've changed, I look at things differently,
1-40: respond differently
5-40: have had a great ten days
22-41: feel good, posture improving
23-41: lowered meds and
23-41: feel brighter,
23-41: good, more up
5-42: off meds
23-43: being able to continue to work my program
5-46: appetite up
5-46: gaining weight
5-46: feeling good
5-46: less mood swings
5-46: less anger

5-48: good day at school
23-50: my Dad says there's been a tremendous change in me overall

Sessions 51 or more

5-57:- martial arts going well
5-60: good week
5-67: going well until today
5-68: feel very good doing schoolwork today
5-73: was grumpy when I came in but now happy
5-76: feel good, training is holding
5-89: ***no asthma at all this fall
5-91: school is good, I'm sure glad my ADHD is under control
23-90: just continuing to do great;
23-90: psychiatrist feels NFT working well for me and now doesn't need to see me for 6 mos.
5-98: eating better
5-98: sleeping better
5-98: happy
5-98: calmer
23-100: my sponsor says she's never seen such rapid healing acknowledging NFT w/ program; asked me to present at AA convention
5-100: 5 weeks w/o session before feeling like I needed one
5-108: no January slump this year
5-118: Asked Mom to make appt; know I needed it; instead of everything being easy, I was starting to struggle and get in trouble.

APPENDIX D

Client Reported Symptoms and Descriptors

Client Reported Symptoms and Descriptors

This listing provides the range and variety of descriptors used by the selected client-subjects. The numbers following the symptom refer to the assigned client number identifier. Some clients arrived with previously diagnosed DSM-IV “disorders.”

Anxiety/Anxious: 1, 3, 6, 7, 8, 9, 11, 12, 13, 16, 18, 23, 25, 29 (14 total)

Nervous: 8

Worries: 8

Fears: 9

Cannot calm myself: 25

Feel like I’m losing control: 29

Overwhelmed: 29

Panic attacks: 3, 9, 13, 25 (4 total)

Post Traumatic Stress Disorder: 10

Obsessive-Compulsive Issues: 9, 21 (2 total)

Obsessive Thinking: 9

Compulsive Activity: 9, 21

Very Controlling: 9

Rigid: 21

Persistent repetitive thoughts: 30

Persistent repetitive speech: 30

Stress: 1, 16, 19 (3 total)

Attention Deficit Hyperactivity Disorder: 2, 5, 8, 15, 23, 30 (6 total)

Symptoms of ADHD: “I have symptoms of ADHD.” 12, 13 (2 total)

Specific symptoms of attention mentioned: 2, 10, 12, 14, 15, 16, 17, 30 (8 total)

Focus: 10, 12, 14, 30

Concentration: 2, 10, 12, 14, 17

Distractibility: 2,

Follow through: 10

Lose things: 15, 30

Disorganized: 15, 30

Timeliness issues: 15, 30

Scattered: 16

Specific symptoms of Hyperactivity

Hyper: 21, 30

Fidgety 21

Impulsivity: 23

Mood: 2, 3, 17, 30, 31 (5 total)

Depression: 4, 6, 11, 12, 13, 14, 18, 21, 24, 25, 27, 31 (12 total)

Going crazy: 29

Negative disposition: 28

Negative attitude: 28

Rudderless ship: 28

Nothing goes right in life: 28

Many dark days: 7
Miserable: 24
Anger: 5, 10, 21, 24, 28 (5 total)
Irritable: 30, 31
Suicidal: 4
Suicidal history: 14
Bipolar: 5, 14, 23 (3 total)
Seasonal Affective Disorder: 6
Lack of Motivation: 12, 17
Procrastination: 3, 12, 17
Isolating self: 6, 14
History of Sexual abuse: 7, 23

Sleep Problems: 1, 3, 5, 6, 7, 11, 13, 15, 16, 18, 19, 20, 23, 25, 27, 30, 31 (17 total)

Doesn't sleep in own room: 5
Lifelong trouble sleeping: 7
Difficulty going to sleep: 16, 25
Wake frequently: 15, 16, 25
Wakes up screaming, inconsolable: 20
Restless: 15, 31
Talk in my sleep: 15, 31

Physical Health Issues: 4, 9, 13, 17, 22, 23, 24, 27, 29, 31 (10 total)

Traumatic Brain Injury: 4
Irregular periods: 9
Post mastectomy: 27
Pain: 27, 31
Fibromyalgia: 31
Hot flashes: 27
Migraine/Headaches: 13
Addiction: 23
 Alcohol: 23, 24
 Sex: 23
Anorexia/Bulimia: 23
Parkinson's: 22
Glaucoma: 22
Heart: 22
Kidneys: 17
Diabetes: 17, 29
Vertigo: 13

Memory: 15, 19, 26 (3 total)

Trouble memorizing: 19
Forgetting: 15, 26
Get lost driving: 26
Names: 26
Reading: 26
Unable to sequence self history: 26

Thinking issues: 2, 16, 29, 30 (4 total)

Racing Thoughts: 6, 16, 29

Second guessing self: 16

Learning problems: 8, 19, 21 (3 total)
Auditory processing: 8
Math: 8, 19
Reading comprehension: 8, 21
Dyslexia: 21

Schoolwork issues: 2

Grief and Mourning: 3, 11, 12 (3 total)
Sad: 3
Lonely: 3

Sensitive to food textures: 14

Enuresis: 5

Low Self Esteem: 8, 12, 16, 18 (4 total)

Lack of self-confidence: 16

Trouble communicating: 9

Tics: 12

Reactive Attachment Disorder: 10
Lies: 10
Steals: 10

Client: Reported Symptoms																
	Ang	Anx	P/A	ADHD	Atten	Dep	Mood	OCD	Strss	Sleep	Mem	Thkg	Lrng	Hlth	Grief	
1 - F Su		X							X	X						
2 - M Reg				X	X		X					X				
3 - M ChB		X	X				X			X					X	
4 - F Pam						X	X							X		
5 - M Col	X			X			X			X						
6 - F TruD		X				X	X			X						
7 - F WenD		X					X			X						
8 - M Mick		X		X									X			
9 - F Kari		X	X					X						X		
10 - F Dee	X				X		X									
11 - M Jak		X				X	X			X					X	
12 - M Ken		X			X	X	X								X	
13 - M Jess		X	X		X	X	X			X				X		
14 - F Jen					X	X	X									
15 - M Jon				X	X					X	X					
16 - M Ted		X			X				X	X		X				
17 - M Mat					X		X							X		
18 - F CeCe		X				X	X			X						
19 - F Alli									X	X	X		X			
20 - M BH										X						
21 - F Ame	X	X			X	X	X	X					X			
22 - F BJ														X		
23 - F Nan		X		X	X		X			X				X		
24 - M Dan	X					X	X							X		
25 - F Brie		X	X			X	X			X						
26 - M WH											X					
27 - F Bev						X	X			X				X		
28 - M Bob	X						X									
29 - F Red		X					X		X			X		X		
30 - M Don				X	X		X			X		X				
31 - F Mel						X	X			X				X		
Totals	5	14	4	6	11	12	22	2	4	17	3	4	3	10	3	

APPENDIX E

Client Reports of Effects by Theme

Client Reports of Effects by Theme

	Sleep	Anx/Calm	S/Aw	IFG	Mood	Drms	Cope	Func	Phys	NRG	Relax	Med	MPTM	FoCo	LS	Rlshp	Sch	Mot	Ang	Org	OPN	Ast	N-S
1-Su	11	1111	11	111	1	11	11	11			1	111		1		111				1		1	
2-Reg	1	1			1	1				1	1		11				111			1			
3-ChB		11	1					1		1		11		1				11					
4-Pam	1	11	1	1	1111			1				1			1			11	1				1
5-Col	11111	11	111	111111111	1111			1	1	111	1		111		1	1		1111		111			
6-TruD		111	111	1	11	1	11				111		1					1	1			1	1
7-WenD	11111	1	1111	11	11	11	1																
8-Mick		1	11111		1			1				11		11	1		11111					1	
9 Kari		111	111111	1		1	11	1			1				1	1							
10-Dee	11	1		1	111	11		1				11	1				11						1
11-Jak	1	1		1	1										11								
12-Ken			1	1	111	1		11							1			11					11
13-Jess	11	11111	1	11	11	11	1	1		111													1
14-Jen	11	1	111		11111	1	11	1111	1	11	1			1	11	1						1	
15-Jon	1111	11111	1	111	1	11	1	11			11			11	1					11111	1		
16-Ted	1111111	1	1111					1		11	11111												
17-Mat		1		111	1			1	11	111				1		1		11					1
18-CeCe	1	111	1	11111	111	111111			1	1			11111			11		11	1			1	
19-Alli	11111111	1		1	1														1				1
20-BH	11111																						
21-Ame	1	111	1111		1111	1	1	1	1	11	1			1		1			11			1	1
22-BJ	11111			111	1	11		1	11111	111111	1	1						11					
23-Nan	1	111	111	111	1		111111	1		1		11		11	1111	11						11	
24-Dan		111	11	111	1	1		1			11	11		1	11				1				
25-Brie	111111	111111	1	1				11	1		1						1						
26-WH				1				11					1111	1							1		
27-Bev	1111	11		1	11		1		1111		1	1	11	1								1	
28-Bob	11	111	11	111	111	1								1		1			1				
29-Red	11	1	1111111	1	11	11		1	11		1	111	11			111					11	11	
30-Don	111	1111	111	11			11111	111		1	1		11			1		1	11	11	1	1	11
31-Mel	11111	11	1	11	11	11111	111	111	1111111	11			1	11									11
Totals	75	66	59	53	50	33	32	31	29	23	22	22	20	18	16	16	15	14	13	10	10	10	9

APPENDIX F

Clients Reports of Effects by Theme and Session Number

Clients Reports of Effects by Theme and Session Number (Page 1 of 2)

	Ang	Anx/Calm	Ast	Cope	Drms	NRG	IFG	FoCo	Func	LS	Med	MPTM
1-Su		2,3,14,39	33	34,40	11,20		4,18,27	34	25,28		18,26,27	
2-Reg		7			13	3						5,6
3-ChB		5,6				3		3	4		3,6	
4-Pam	7	1,5	16				19		10	21	17	
5-Col	5,10,46	3,98		39		31	8,21,37,40,46,60,67,76	10	57	28	19,30,42	
6-TruD	8	3,12,13	12	4,12	12		5					13
7-WenD		13		13	8,10		6,7					
8-Mick		6						9,27	26	19	23,25	
9-Kari		3,5,13		3,6	9		15		6	15		
10-Dee		24			9,11		18		5		6,33	18
11-Jak		6					6			5,6		
12-Ken			10,14		12		5		12,15	10		
13-Jess		4,8,10,15,16		11	9,16		3,11					
14-Jen		2		15,16	5	3,13		15	3,5,8,16	13,16		
15-Jon		2,4,5,15,27		21	6,7		9,21,27	9,27	9,32	29		
16-Ted		27		27		5,10						
17-Mat		2				3,6,17	6,13,14	6	14			
18-CeCe	14	1,4,7	26		3,6,8,11,15,21	14	13,17,19,20,26					3,4,5,7,18
19-Alli	17	9					8					
20-BH												
21-Ame	9, 18	14,18,21	9	19	12	9,12		9	15			
22-BJ					10,23	5,6,8,10,17,20	8,32,41		41		36	
23-Nan		1,6,12		11,16,19,23,20,24		6	9,23,90	6,7	7	10,31,43,90	20,41	
24-Dan	6	4,6,8			4		3,5,6	8	20	9,11	5,12	
25-Brie		2,6,7,8,9,11		1, 15			4		13			
26-WH							4	11	8,17			6,8,10,12
27-Bev		1,5		8			8	4			3	12,14
28-Bob	5	4,5,6			4		1,2,12	4				
29-Red		6	19,23	8,12	18,26		21		15		3,13,14	8,18
30-Don	5,6	3,6,10,16	16	6,7,10,17,21		14	9,10		7,16,17			14,32
31-Mel		23,24		17,20,24	4,7,8,22,24	6,24	1,20	2,23	16,17,23			1
# Clts	9	27	8	17	17	12	24	14	20	10	11	9

Clients Reports of Effects by Theme and Session Number (Page 2 of 2)

	Mood	Mot	Org	OPN	Phys	Rlshp	Relax	Sch	Sleep	S/Aw	N-S
1-Su	16		40			11,22,27	4		3,11	28,40	
2-Reg	6		15				3	4,9,17	5		
3-ChB		2,7								6	
4-Pam	2,3,5,10	5,9							8	17	
5-Col	22,46,98,108				46,89,98			32,48,68,91	3,5,16,18,98	73,100,118	
6-TruD	5,13	13		12			1,2,5			5,8,15	
7-WenD	7,9								3,5,6,8,10	4,5,9,10	
8-Mick	9			19				7,19,20,25,27		4,5,7,15,26	
9 Kari						4	2			5,6,9,10,11,13	
10-Dee	5,24,26							12,13	3,15		5
11-Jak	5								4		
12-Ken	10,13,15	12,15								6	
13-Jess	16,18				3,15,21				11,12	19	18
14-Jen	4,12,13,15,19			5	12	14	13		12,13	16,18,20	
15-Jon	13		5,7,10,19,27	27			8,13		6,19,20,26	27	
16-Ted							1,2,3,4,6		3,8,11,12,13,14,15	3,4,27,30	
17-Mat	6	3,9			13,17	2					17
18-CeCe	4,7,17	2,18			26	1,6			6	17	
19-Alli	8								4,6,7,8,9,11,16,17		14
20-BH									2,3,4,5,6		
21- Ame	5,9,10,14				15	15	5		3	4,6,10,18	14
22-BJ	9	17,22			6,8,9,11,23		7		4,6,7,9,12		
23-Nan	41			50,100		16,19			1	16,19,20	
24-Dan	17						1,8			2,11	
25-Brie							2	12	2,6,8,9,10,11	16	
26-WH			6								
27-Bev	8,15			2	2,4,5,7		4		3,5,7,15		
28-Bob	6,8,14					6			2,4	8,10	
29-Red	2			7,18	7,19	4,17,22	1		7,15	3,7,17,19,21,22,23	
30-Don		16	8,32	5		5	16		7,20,21	6,17,32	3,14
31-Mel	6,8				1,2,4,6,9,10,23				1,2,6,8,9	14	2,18
# Clts	24	8	5	8	10	10	14	5	23	22	7

APPENDIX G

**Comparison of Session to Theme Response Left to Right, Highest to Lowest Number
of Responses**

Comparison of Session to Theme Response Left to Right, Highest to Lowest Number of Responses

Session	Sleep	Anx/Calm	S/Aw	IFG	Mood	Drms	Cope	Func	Phys	NRG	Relax	Med	MPTM	FoCo	LS	Rlshp	Sch	Mot	Ang	Org	OPN	Ast	N-S
1	11	1111		11			1		1		1111		1		1								
2	1111	11111	1	1	1				111		1111			1		1		11			1		1
3	11111111	11111	11	11	1	1	1	1	1	1111	11	111	1	1				1					1
4	11111	11111	1111	1111	11	111	1	1	11		111		1	11		11	1						
5	11111	111111	1111	111	11111	1		11	1	11	11	1	11		1	1		1	111	1	11		1
6	11111111	11111111	11111	1111	1111	11	11	1	11	1111	1	11	11	11	1	11			11	1			
7	11111	111	11	1	11	11	1	11	11		1		1	1			1	1	1	1	1		
8	111111	111	11	1111	1111	111	11	11	1	1	11		11	1					1	1			
9	1111	11	11	111	1111	111		1	11	1				111	1		1	11	1				1
10	11	11	1111	1	111	11	1	1	1	11			1	1	11				1	1			1
11	11111	1	11	1		111	11		1					1	1	1							
12	1111	11		1	1	111	11	1	1	1		1	11				11	1			1	1	
13	11	111	1	11	11111	1	1	1	1	1	11	1	1		11		1	1					
14	1	11	1	1	11			1		11		1	11			1			1			1	111
15	1111	11	11		111	1	11	111	11				111	1		1		1		1			
16	11	11	111		11	1	11	111			1				1	1		1				11	
17	1		1111	1	11		11	111	1	11		1				1	1	1	1	1			1
18	1	1	11	11	1	1						1						1	1		1		11
19	1		111	11	1		11		1			1			1	1	1			1	1	1	
20	11		11	11		1	11	1		1		1					1						
21	1	1	1	111		1	11							1	1								
22			1		1	1										11		1					
23		1	1	1		1		1	11			1											1
24		11			1	1	11			1													
25								1				1						1					
26-30	1	11	11111	111	1	1	1	11	1			111		11	11	1	1			1	1	1	
31-40		1	11	111			111	1		1		11	1	1	1		1			11		1	
41-50				11	11			1	1			11			1		1		1		1		
51-118	1	1	111	1111	11			1	11						1		11				1		
Total	75	66	59	53	50	33	32	31	29	23	22	22	20	18	16	16	15	14	13	10	10	10	9

APPENDIX H

Number of Sessions Per Client

Number of Sessions Per Client (N=31)				
Client	# of sessions	Status	Span of NFT	Stats
20 -BH	6	NR	3 weeks	
11 -Jak	6	NR	2 weeks	
3 -ChB	7	NR	2 months	<10, 9.7%
7-WenD	13	NR	6 months	
6 -TruD	15	NR	5 months	
12 -Ken	15	NR	3 months	
27 -Bev	15	NR	10 months	11-15, 13%
25 -Brie	16	NR	2 months	
2 -Reg	17	NR	3 months	
17-Mat	17	NR	6 weeks	
19-Alli	17	NR	9 weeks	
14-Jen	20	NR	2 months	
24-Dan	20	NR	2 months	
26-WH	20	NR	3 months	16-20, 22.6%
9-Kari	21	NR	13 months	
21-Ame	21	NR	5 months	median
4-Pam	25	NR	7 months	mean = 31
13-Jess	25	NR	11 months	
18-CeCe	26	NR	12months	
8-Mick	27	NR	5 months	
29-Red	28	Current	5 months	21-30, 22.6%
15-Jon	32	NR	9 months	
10-Dee	33	NR	5 months	
16-Ted	36	NR	12 months	
30-Don	37	Current	7 months	
1-Su	40	NR	4 months	
28-Bob	40	T-ups	19 months (2 years)	
22-BJ	41	NR	6 months	30-50, 22.6%
31-Mel	90	T-ups	2 years	
23-Nan	100	NR	12 months	
5-Col	118	T-ups	3 years (6 years)	>90, 9.7%
NR - Non- Returning Client				
T-ups - Client returns for Tune-ups (span to date of study)				
Current - active client at time of write-up				

APPENDIX I

Sleep Effects Reported by Clients: by Session Number

Sleep Effects Reported by Clients: by session number (N=31)				
Client	Sleep reported as an issue	Sleep Effect as Reported by Sessions number		
		Sessions 1-10	Sessions 11-20	Sessions 21 -98
1-Su	yes	3	11	
2-Reg	no	5		
3-ChB	yes			
4-Pam	no	8		
5-Col	yes	3, 5	16, 18	98
6-TruD	yes			
7-WenD	yes	3, 5, 6, 8, 10		
8-Mick	no			
9-Kari	no			
10-Dee	no	3	15	
11-Jak	yes	4		
12-Ken	no			
13-Jess	yes		11, 12	
14-Jen	no		12, 13	
15-Jon	yes	6	19, 20	26
16-Ted	yes	3, 8	11, 12, 13, 14, 15	
17-Mat	no			
18-CeCe	yes	6		
19-Alli	yes	4, 6, 7, 8, 9	11, 16, 17	
20-BH	yes	2, 3, 4, 5, 6		
21-Ame	no	3		
22-BJ	no	4, 6, 7, 9	12	
23-Nan	yes	1		
24-Dan	no			
25-Brie	yes	2, 6, 8, 9, 10	11	
26-WH	no			
27-Bev	yes	3, 5, 7	15	
28-Bob	no	2, 4		
29-Red	no	7	15	
30-Don	yes	7	20	21
31-Mel	yes	1, 2, 6, 8, 9		
Totals		49	23	3

APPENDIX J

Demographic Information

Demographic Information (N=31)						
# M/F "Name"	Age/ # sessions	Marital Status	Lives with:	Occupation		
1 - F Su	55 y.o. 40	Married	Husband & 1 son	Domestic slave		
2 - M Reg	15 y.o. 17	Single	Dad & Stepmom	Student		
3 - M ChB	45 y.o. 7	Single/Div	Alone	Contractor		
4 - F Pam	48 y.o. 21	Divorcing	Alone	Banker		
5 - M Col	6 - y.o. 118	Single	Mom, Dad, & sis	Student		
6 - F TruD	56 y.o. 15	Married	Husband	Chemist		
7 - F WenD	48 y.o. 13	Single	Significant Other	Massage Therapist		
8 - M Mick	15 y.o. 27	Single	½ Mom & ½ Dad	Student		
9 - F Kari	28 y.o. 21	Married	Husband	Nutritionist		
10 - F Dee	10 y.o. 33	Single	Mom, Dad, bro & sis	Student		
11 - M Jak	23 y.o. 6	Single	Mom, Dad, 2 sisters	Student		
12 - M Ken	55 y.o. 15	Married	Wife & 2 daughters	Office Manager		
13 - M Jess	30 y.o. 25	Single	Son	Designer		
14 - F Jen	31 y.o. 20	Single	Mom & Dad	Medical office		
15 - M Jon	45 y.o. 32	Single	Significant Other	Tree Services		
16 - M Ted	51 y.o. 36	Married	Wife & 2 sons	Systems Manager		
17 - M Mat	51 y.o. 17	Married	Wife & son	Unemployed		
18 - F CeCe	42 y.o. 26	Married	Husband & son	Homemaker		
19 - F Alli	17 y.o. 17	Single	Mom & Stepdad	Student		
20 - M BH	13 mos. 6	Single	Mom	Baby		
21 - F Ame	31 y.o. 21	Divorcing	Mom & Dad	Retail		
22 - F BJ	81 y.o. 41	Married	Husband	Retired		
23 - F Nan	25 y.o. 100	Single	Mom & Dad	Nanny/House-sitter		
24 - M Dan	38 y.o. 20	Married	Wife	Painter		
25 - F Brie	21 y.o. 16	Single	3 F roommates	Student		
26 - M WH	78 y.o. 20	Married	Wife	Retired		
27 - F Bev	53 y.o. 15	Married	Husband	Landscape Design		
28 - M Bob	70 y.o. 40	Single/Div	Alone	Appraiser		
29 - F Red	41 y.o. 28	Married	Husband & 2 dau	Prog. Coordinator		
30 - M Don	57 y.o. 37	Married	Wife	Professional Clown		
31 - F Mel	54 y.o. 90	Single/Div	S.O. & son	Water Specialist		

APPENDIX K

**Invitation to Participate
Informed Consent
Statement of Confidentiality**

***International University for Graduate Studies
Invitation to Participate in Research***

Karen Cochrane, M.Ed.
PO Box 832
Poulsbo, WA 98370
360.509.9199

September 28, 2009

Dear.....,

I am currently involved in a research project for my dissertation in partial fulfillment of the requirements for my Ph.D. in Behavioral Health at The International University for Graduate Studies. One aspect of my research addresses the experience of Neurofeedback training (NFT) using Zengar NeuroCARE/Zengar NeurOptimal (ZIN) in the context of psychotherapy.

To date, no formal research has explored individuals' personal experience of the process of change that occurs in a person's life as a result of this training.

You have been asked to participate because you have experienced Neurofeedback Training, using ZIN. Your participation in this study, as co-creator, will provide useful information about the process and experience of change through the use of an advanced technology and add to the body of research in the field of psychology and behavioral health concerning the experience of its use in improving quality of life.

Description of Procedures: This study explores the experience of Neurofeedback Training. The inspiration for this exploration has been stimulated by responses made over the course of training to the question, "*Have you noticed any effects since your last visit that you think might be related to your training?*" and will involve an interviewing process and may seek clarification of selected information you have shared with me in your case notes. All information gathered remains confidential, in that identifying information will not be disclosed. Information that is used will only be used with your approval, and direct quotations will be confirmed and approved prior to their use. I will be conducting all aspects of the research process myself. The main potential benefit is in the contribution to scientific knowledge on this topic. No costs or payment are associated with participating in this study. Participation is entirely voluntary. The total time needed from you to speak to your experience and/or to clarify information previously given, and to approve what is written for the research document is estimated as, at maximum, parts totaling about 3 hours.

The interviewing processes for additional details, expanded explanation and confirmation could possibly be experienced as an inconvenience or intrusive. Please do not volunteer if you aren't interested, don't want to, or if participation feels like an imposition, bother or intrusion.

You may choose not to participate or withdraw from the study at any point without penalty. If any discomfort should arise regarding any material addressed in the study, please speak to me

personally (360-509-9199) or by email kmscchrn@earthlink.net to ask any questions and to discuss your feelings. You may also contact my mentor, Alan Bachers, Ph.D. at alanbachers@gmail.com or Stephen Daniel, Ph.D., my committee chairman, at stephen.allen.daniel@gmail.com

Benefits: The main benefit is in the potential contribution to the body of scientific knowledge on this topic.

Economic Considerations: No costs or payment are associated with participating in this study.

Confidentiality: All information gathered remains confidential. Confidentiality in research means that your identity is known and linked to you as part of the research. To protect your privacy, I will not be using your name, however because this is an experiential research, I may need to include some contextual, personal information such as age, gender, family configuration, reason for seeking NFT, as well as statements made to me during your training process and interviews. *Information used will only be used with your approval, and direct quotations will be confirmed and approved prior to their use.* I will be conducting all aspects of the research information gathering process myself. A research assistant and transcriptionist, bound by the rules of privacy and confidentiality and who have also signed Privacy and Confidentiality Statements, will be helping me.

The IUGS Institutional Review Board (IRB) may inspect study records as part of its auditing program, but these reviews only focus on the researchers and not on your responses or involvement. The IRB is a group of people who review research studies to protect the rights and welfare of research participants.

If you are willing, please sign one copy of the enclosed **Consent for Participation in Research Project** and one copy of the **Confidentiality Statement** and return it to me in the envelope provided. Please keep the one copy of each for your own file. Once I receive your signed forms, I will contact you to set up a time for an initial interview.

Thank you for your assistance.

Sincerely,

Karen Cochrane M.Ed.

International University for Graduate Studies

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Informed Consent for Participation in Research Project

This study explores the experience of Zengar NeuroOptimal Neurofeedback Training. It is performed in partial fulfillment of the requirements for the researcher's Ph.D. in Behavioral Health at The International University for Graduate Studies.

There are no foreseeable risks with this research. The main potential benefit is in the contribution to scientific knowledge on this topic. No costs or payment are associated with participating in this study. Participation is entirely voluntary. You may withdraw from the study at any point without penalty. If any discomfort should arise regarding any material addressed in the study, please speak to me personally (360.509.9199 or kmscchrn@earthlink.net) to ask any questions and to discuss your feelings. You may also contact my mentor, Alan Bachers, PhD at alanbachers@gmail.com or Stephen Daniel PhD, my committee chair, at stephen.allen.daniel@gmail.com.

A more complete statement of the nature and purpose of the research will be available when the data collection is completed.

I agree to participate in this research project and I understand that:

1. The time required for the initial interview may be 1-1.5 hours.
2. The time required for follow-up interviews, as needed, may be .5 to 1.5 hours.
3. The nature of my participation includes the use of information taken from my case notes about my experience of Neurofeedback Training, and interviews and consultation interviews, 1 initial and possibly 1 to 2 follow-up interviews.
4. I understand these interviews will be recorded.
5. My participation is entirely voluntary. I may terminate my involvement and stop participating at any time without penalty.
6. All my data remain confidential. In the written record of the research I will be identified by an alias. The notes, any recordings and any transcriptions of interviews will be kept in secure storage after the research is complete. (Please sign the separate confidentiality statement attached)
7. All data are for research purposes only.
8. If I have questions about the research, or if I would like to receive a copy of the aggregate findings of the study when it is complete, I can contact the researcher at the address and phone number above.

Signed _____ Date _____ (Participant)

Signed _____ Date _____ (Researcher)

International University for Graduate Studies

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Statement of Confidentiality for Participation in NFT Research Project

All information gathered and used for this project remains confidential. Confidentiality in research means that your identity is known to the researcher and linked to you as part of the research. However, to protect your privacy, I will disguise your name by through the use of an alias or pseudonym. Your address, telephone number, any other contact information, and other identifying information such as school attended, name of business or place of employment will not be used, nor will this information be shared with any outside sources.

Because this is research of your personal experience of Neurofeedback Training, I may need to include some contextual, personal information such as age, gender, family configuration, reason for seeking NFT, as well as statements made to me during your training process, sessions and interviews. ***All information used, including direct quotations, will be used only with your approval, and will be confirmed and approved prior to use.*** A research assistant bound by the rules of privacy and confidentiality and who has also signed Privacy and Confidentiality Statements, will be helping me.

The International University for Graduate Studies Institutional Review Board (IRB) may inspect study records as part of its auditing program, but these reviews only focus on the researchers and not on your responses or involvement. The IRB is a group of people who review research studies to protect the rights and welfare of research participants.

Research notes, recordings and transcripts will be securely stored for a minimum of 7 years post study.

Participant signature _____ Date _____

Participant's name printed _____

Karen Cochrane, M.Ed., Researcher

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GLOSSARY

Definitions of Significant Terms

Flexibility and *resilience* represent qualities of response and occur throughout all of our embodied internal human-systems environments, as well as in our interactions with external environments. *Flexibility* refers to a ready capability to adapt to new, different or changing requirements as they occur. The phrase “go with the flow” brings to mind the experience of kayaking or rafting down a river with complete attuned awareness, adjusting to the continually changing conditions, whether or not you have previously experienced a journey on that particular river from launch point A to take-out point B. We can never step twice into the same river (Heraclitus), nor do we exist as the *same* person as we ‘were’ on any earlier journey because, as human, we exist as constantly changing organisms-as-a-whole-interacting-in-environments through space-time.

Resilience can be defined as a capability to recover from or adjust to stressors, adversity, misfortune or change. Resilience refers to our ability to cope with stressors, our ability to face problems and troubles and not get beat by them. Recuperativeness seems a characteristic of resilience (Waller, 2001; Werner, 1995). Our ability to “snap out of it,” “bounce back,” and “weather the storm” represent some colloquial expressions of resilience.

Optimal living incorporates flexibility and resilience; but also incorporates an ability to function moment to moment at a desirable or satisfactory level. Whereas peak performance addresses a person's ability to perform at their very best, usually achievable for short amounts of time toward a focused endeavor, optimal living has a more global meaning toward a general feeling of functioning well and quality of life. Quality of life includes feelings of subjective well-being, happiness, life satisfaction and positive affect in daily living (Diener, 1984; Frisch, et al, 1992; Gladis, et al, 1999). Well-being refers to a sense of health and goodness, a sense of flourishing. I think of it as a kind of walking in comfort within oneself, and having presence and feeling of being at ease within.

Transformation indicates change in composition or structure and implies a major change in form, function or nature. Transformation has meaning on many different levels within the ZIN paradigm. It indicates processes occurring within the program, within the brain and CNS during ZIN NFT and extending to desired change within oneself and in relation to external environments, which include other people, landscape, family, community, culture, values, history, present as well as 'the world'). The transformation may occur in a myriad of ways, but whatever the intention or means, it has effect on the whole organism and in turn on the environments one interacts within. Few people come into psychotherapy seeking "personal transformation" in these exact words. I use personal transformation to indicate changes occurring at the silent levels realized as taking place in thinking-feeling-behaving that the person recognizes as happening in the desired manifestation, as described by the person, and/or noticed and/or brought

to their attention by others interacting with them within environments. Personal transformation implies a self awareness and an intention towards a desired change within oneself and in relation to environments (Maslow, 1954, 1971).