

**No Child Left Behind goals
(and more) are attainable
with the Neurocognitive approach: Vol. 1**

Introduction

Presented below is one parent's report on her reading disabled child's status following Neurocognitive treatment.

"Her change in abilities and feelings is nothing short of phenomenal! She is actually reading proficiently and for sustained periods of time. For the first time in her life, she asked me to wait a few minutes until she finished the chapter of a book she was reading. Before your intervention, it was a battle of wills to get her to read even a paragraph!

There has been a basic change in her ability to act as an independent, self-regulating individual in the world, which has been remarked on by everyone who has worked with her, and especially by those who have spent extended time with her. It is truly the difference between health and developmental disability.

The Neurocognitive treatment is the ultimate in "NO CHILD LEFT BEHIND!"

In the words of another parent;

"His vocabulary has tripled. He now reads books. Before treatment he wasn't able to even read a chapter and remember what it said. He reads for pleasure now that it isn't a huge chore like it was before. His short-term memory has greatly improved. I seldom have to repeat instructions to him. His self-confidence levels has improved 100%. He used to be a boy who hardly spoke to anyone; now he will come up and introduce himself to strangers. He is even teaching a children's Martial Arts class. His grades keep improving, he has gone from an F student to a C and B student. He has lots of catching up to do and I believe if we had started this treatment sooner he would be an A student by now."

Scientific revolutions and discoveries have changed our world forever. The first and last great revolution in education was the printing of a book. The next revolution will bring modern neuroscience discoveries into the classroom and will change how the mind reads the book.

The evolution of the human brain stopped some 300,000 years ago - until now. Genetics and environment no longer can dictate how we learn and our brains work. The Neurocognitive approach can effectively change how our brain functions. The implications for society and the human species go far beyond the educational process and reading, yet that is where we need to start.

To learn to read is to light a fire; every syllable that is spelled out is a spark.

Victor Hugo

Man ceased to be an ape, vanquished the ape, on the day a first book was written.

Yevgeny Zamyatin

Education is the most powerful weapon which you can use to change the world.

Nelson Mandela

In 1789, Benjamin Franklin wrote,

“Nothing can more effectually contribute to the cultivation and improvement of a country, the wisdom, riches and strength, virtue and piety, the welfare and happiness of a people than a proper education of youth” (Brown & Moffett, 1999).

In the words of former Senate Minority Leader Tom Daschle’s (Democrat - South Dakota).

“Let me suggest one final goal that could occupy the best efforts of scientists from every discipline for a generation to come. Now that we have surveyed the map of human life, let us turn our attention to that which makes human life unique: the mind. What challenge would be beyond our reach if we truly understood how we learn, remember, think and communicate? What could we accomplish if our education policy was bolstered with a new understanding of how children learn? How much

safer could our neighborhoods be if neurophysiology solved the puzzle of addiction? What industry would not be strengthened by a more complete picture of the workings of the mind? There is perhaps no field in which major advances would have more profound effects for human progress and health than that of neuroscience. If the American scientific community could come together and communicate to the nation the kaleidoscopic possibilities that could result if we unlocked the secrets of the mind, we could not only achieve untold advances in science, we could open a new chapter in the story of America's support for science." (Daschle, 2004)

These quotes provide the purpose for this book – the need for the integration of education with modern neuroscience to improve the human condition with respect to the lives of our children.

With the advent of No Child Left Behind (NCLB), there has been considerable pressure on the educational system to increase the reading and math levels of our students. The title of this book states that the NCLB goals are attainable with the Neurocognitive approach. NCLB's goal is 100% basic reading abilities in our children by the year 2014. The author, as well as other professionals in the field, believes that this goal is totally impossible to attain with current intervention models. The author believes that the NCLB goals are **mostly attainable** if the physical problems in brain functioning are addressed with the Neurocognitive approach.

The Neurocognitive approach precisely defines the relationship between effective cognitive activity and electrophysiological variables and increases the cognitive effectiveness of the human mind with operant (rewarding/inhibiting of spontaneous behavior) conditioning methodology of the brain's electrophysiology. Central to its application is the existence of a quantitative EEG activation database, which is employed to define a subject's deviation from the norm on relevant variables. The activation database is the quantitative EEG data collected on a large sample of normal subjects engaged in a diverse set of important cognitive tasks. These concepts will be explained further in chapters 10-12.

Several qualifications and limitations of the approach will be addressed in Chapter 16 (The Questions). These qualifications and limitations render the NCLB 100% goal as unattainable and the title of this

book as an overstatement. The logic and evidence provided, however, make it clear that our current approaches are woefully inadequate to the task. We can obtain significantly better results in considerably less time with the Neurocognitive approach with resulting significant positive effects on a number of other societal problem areas.

Reading problems in our children need to be understood in the general context of developmental and brain functioning problems such as learning disability, reading disabilities, ADHD and math disabilities. The basic tenet of this book is that problems in the physical functioning of the brain underlie these conditions and the most effective way to improve these conditions is with a physical intervention.

There are five main purposes of this book.

- 1) To examine the problems of NCLB from a political, economic and realistic assessment of the attainability of NCLB's goals.
- 2) To examine the scientific research on how effective our psychoeducational interventions have been in this area during the past 80 years.
- 3) To examine what Neuroscience has taught us about brain functioning and how this affects the NCLB goals.
- 4) To examine the context in which the reading problem exists and how problems in brain functioning affect more than just reading ability. Brain functioning problems have considerable effect on the lives of the people who are affected as well as society in general.
- 5) To explain, describe and document how a particular simple physical intervention model, Neurocognitive treatment, can effectively address these problems and have significant and positive consequences on the individuals affected and on major societal institutions.

The book will be presenting a considerable amount of information in the pursuit of integrating information across a diverse set of fields. Many of the "facts" presented are rough estimates and should be viewed in

that light, as the “real” numbers are sometimes hard to discern from the data and difficult to obtain for many reasons. There are also conflicting numbers in some cases as different research methodologies can result in different numbers. We would like to caution the reader not to get bogged down in the specific numbers but appreciate rather the global extent of the brain functioning problem as it manifests itself in multifaceted ways. Behind the wealth of data presented are 3 simple concepts:

- 1- Many of these societal problems are intimately tied to problems in brain development and functioning.
- 2- Major personal and societal problems can be effectively addressed by relying upon the capacity of the human brain to respond to our requests to change how it functions.
- 3- The improved results of the Neurocognitive approach to these problems would have major financial, health and social implications for our society and the individuals affected by these problems.

We will be discussing relevant scientific information on the underlying brain functioning problem which is a major contributor to several major societal problems. We will present complex appearing concepts and explain them in easy to understand language while maintaining the integrity and meaning of the concepts. This discussion will not gloss over important issues but rather delve into the details of the problem when relevant to the overall purpose of the book. Our societies and the future of our world are totally dependent upon the abilities of the human mind. To understand how it functions and how to improve its functioning should be and is a major thrust of modern science. The discoveries reported in this book offer one perspective and insight into this broad area.

The United States is presently spending an estimated **\$157 to \$590 Billion dollars a year** for problems in brain functioning. This number is based upon estimated special education costs (\$54 billion in 2004 – Washington Times, 2004), traumatic brain injury (TBI) costs (\$62 billion in 2001 – Thompson et. al., 2001), and prison costs (24.5 billion in 1996 – Bureau of Justice Statistics, 1996). Estimates of the costs of crime vary but

were \$17.6 billion in 1992 (Klaus, 1994). Violent crime estimates (including drunk driving and arson) are \$426 billion annually. Estimates of property crime are \$24 billion (Miller et. al., 1996). The TBI estimates includes physical problems.

These estimates do not include other potential costs (automobile accidents, medications, drug abuse, etc.)

The discussion in this book will make it clear that our present solutions are woefully inadequate to meet these challenges. Neurocognitive intervention is the alternative approach that has been scientifically demonstrated to obtain superior results across major societal problems: education, criminal justice, traumatic brain injury rehabilitation, medical costs and drug rehabilitation. The implementation of this approach into the educational system during the early years of a child's educational experience would have a significant and positive effect upon the child, the child's family and the educational, health and prison system of the United States. The estimated cost savings for special education alone is some \$327 billion dollars over time (Thornton, 2004).

This book will present a scientific argument for a solution to some of the problems facing our society. There are millions of children and their parents who are experiencing considerable difficulty in life and emotional pain as a result of the problems in brain functioning. This group would include the parent of the ADHD child who runs into the street and is killed because of his inattentiveness and impulsivity; the reading disabled child who knows something is wrong, feels inferior to his peers and cries at night; the adult ADHD person who can't maintain a job or pay his bills because no one wants to hire him or promote him; the soldier who experienced a concussion during a roadside bomb blast and isn't getting better in the VA system; the thousands of children who think they are stupid because parts of their brains don't work well.

If the reader is a parent who is not interested in all the political, economic and social issues presented in this book, but merely wants to understand how the Neurocognitive technology can help their child, we would suggest just reading Chapters 10 thru 16 and Chapter 23. These chapters provide the basic science, evaluation and treatment results and

clinical updates, summaries and comments from individuals who have undergone the program.

The following brief chapter descriptions will provide the reader with the narrative and logical flow of the book and argument.

Chapter Headings

Chapter 1 - Chapter 1 - No Child Left Behind (NCLB) – Politics, Economics and Efficacy Results

Reviews the current political and economic controversies surrounding the NCLB act and the inevitable failure of the program.

Conclusion: The situation is a briar patch with no clear easy resolution.

Chapter 2 - What is the Scope of the Problem?

Discusses the prevalence of the reading disabled, learning disabled and traumatic brain injured population. These groups are the most problematic population for NCLB goals.

Conclusion: The subject population is quite large and pervasive throughout society.

Chapter 3 - Efficacy Research on Educational Intervention Programs for the LD/ADHD and TBI Student.

Reviews the historical research on what interventions have been attempted to improve these conditions.

Conclusion: The current programs are, by and large, minimally effective, costly and time consuming in comparison to the Neurocognitive option.

Chapter 4 – Causes of Non-Optimal Brain Development/ Functioning.

Examines the numerous possible causes of non-optimal brain functioning and two broad categories of interventions.

Conclusion: There are a plethora of possible negative effects on brain functioning.

Chapter 5 - Neuroscience of Reading/Learning Disability/ ADD / ADHD / TBI

Provides a somewhat superficial view of modern neuroscience and what it has been discovered about the physical nature of these problems.

Conclusion: We are beginning to have some idea of the nature of the underlying physical problems.

Chapter 6 – Behavioral Manifestations of Brain Functioning Problems Which Relate to Reading Problems.

Examines the behavioral manifestations of brain functioning problems in terms of the DSM IV classification system.

Conclusion: The problem is more than just a reading problem.

Chapter 7 - Comorbidity Relationships in the ADHD condition

Examines the ADHD condition, which is the most researched of all of the conditions in terms of what we know about comorbidity issues.

Conclusion: There are significant comorbidity issues in the ADHD child.

Chapter 8 – Cost Issues

Examines the costs of having the ADHD condition, for the family, the subject and society.

Conclusion: There is a high cost, financially and emotionally, for all concerned.

Chapter 9 – Drugs and the Quality of Life

This chapter examines this most common treatment approach to the ADHD situation, describes the side effect problem and the possible effects on the subject.

Conclusion: Drugs are not very effective. There are substantial side effect problems and “Black Box” warnings. Medications are not a viable option.

Chapter 10 - What is the EEG?

This chapter describes the basic concepts of the quantitative EEG.

Conclusion: There is a relevant science to the problems discussed.

Chapter 11 - The quantitative EEG (qEEG)

This chapter reviews the logic and research literature on the ability of the qEEG to differentiate clinical conditions and its usefulness in reference to NCLB.

Conclusion: The approach has shown its usefulness in improving clinical conditions and cognitive functioning, which is particularly relevant to NCLB.

Chapter 12 - The Development of the Activation Database Guided Neurocognitive Interventions.

This chapter outlines the development of the activation qEEG approach in terms of its logic and database development.

Conclusion: There is an alternate way to look at the qEEG.

Chapter 13 -The Activation qEEG Evaluation Procedure

Conclusion: The activation qEEG evaluation procedure is a viable and logical approach to examine the brain.

Chapter 14 – Evaluation Examples

This chapter provides examples of evaluation results of the brain.

Conclusion: We can evaluate individual brains and obtain meaningful results.

Chapter 15 – Treatment Examples

This chapter goes through clinical examples in detail to show how the brain responds and the resultant changes in cognitive functioning which result.

Conclusion: The Neurocognitive intervention model has obtained far superior results to all other intervention models in existence and at a considerable savings in cost.

Chapter 16 – The Questions

This chapter discusses some overall questions raised by the procedures and approach as it is currently practiced.

Conclusion: There are some important clinical and scientific questions which require an understanding to maximize the effectiveness of the intervention.

Chapter 17 - Implications for Society

This chapter discusses the implications of the approach for our position in the world community with respect to intellectual and educational standings.

Conclusion: Despite our world status in many respects, the US is having problems being competitive in the educational arena.

Chapter 18 - Education – Potential Effect

This chapter discusses the relationship between IQ, SAT scores, achievement levels for individuals and the Gross Domestic Product (GDP).

Conclusion: There are powerful relationships between scores on IQ tests, an individual's success in life and societal productivity.

Chapter 19 – Prisons, Drugs and Special Education

This chapter discusses the implications of the approach upon our prison population, drug problem and special education problem and reviews research in these and other areas.

Conclusion: The approach has produced positive results in a number of clinical conditions.

Chapter 20 – Other Clinical Applications: Alcoholism, Autism, Asperger's, etc.

This chapter examines the EEG biofeedback literature related to alcoholism, autism, asperger's, post-traumatic stress, sports, peak performance, and the military

Conclusion: The technology is relevant to a number of behavioral areas.

Chapter 21 - The Future of the Technology – The Final Frontier

This chapter discusses the future of the technology.

Conclusion: The implications are quite significant.

Chapter 22 - The Problem of Change – The Politics of Change and the Failure to Respond

This chapter reports the results of efforts to change the system and the lack of response of the bureaucratic and political systems.

Conclusion: It is very difficult to change a bureaucracy.

Chapter - 23 – Client Reports

This chapter provides clinical updates from individuals and the parents of students who have engaged in the interventions.

Conclusion: Clients and their parents are very happy with the results and note diverse effects across a wide category of behavior.