

Review of “Evaluation and Treatment of Neuropsychologically Compromised Children”

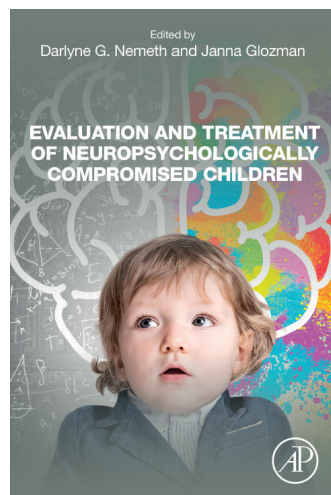
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Обзор книги «Диагностика и коррекция детей с нейропсихологическими проблемами»

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Abstract. The number of neuropsychologically challenged children throughout the world is of great concern. The book, *Evaluation and Treatment of Neuropsychologically Compromised Children* (London: Academic Press, 2020), edited by neuropsychologists Darlyne G. Nemeth from America and Janna Glozman from Russia, offers the most current expertise to ameliorate this situation. Chapters present the work of practitioners and researchers from around the world who acknowledge and apply the legacies of noted neuropsychologists Alexander Luria and Ralph Reitan, from Russia and the United States respectively, to effectively evaluate and treat neuropsychologically compromised children. The work by the authors is of greatly value to all health professionals about diagnosis and intervention and treatment approaches to address a wide range of brain-behavior challenges that children face. The contributions build on the foundation set by pioneers Luria and Reitan to present a new level of professional practice and vision that bodes well for the well-being of children and adults worldwide.

Keywords: *Luria; Reitan; neuropsychologically compromised children; neuropsychology evaluation; neuropsychology treatment*

Аннотация. Серьезное беспокойство вызывает большое количество детей с нейропсихологическими нарушениями во всем мире. Книга «Диагностика и коррекция детей

с нейропсихологическими проблемами» (Лондон: Academic Press, 2020) под редакцией нейропсихологов Дарлин Немет из США и Жанны Глозман из России предлагает современный опыт улучшения этой ситуации. В книге описывается опыт практиков и исследователей из разных стран, применяющих подходы выдающихся нейропсихологов — Александра Лурия из России и Ральфа Рейтана из США к нейропсихологической диагностике и коррекции детей с нейропсихологическими проблемами. Работы авторов представляют большую ценность для профессионалов в области здравоохранения, диагностики и лечения большого числа нарушений поведения и мозговых функций у детей. Эта книга, основанная на пионерских теоретических исследованиях Лурия и Рейтана, выводит профессиональную практику и теорию на новый уровень, что будет способствовать психическому здоровью и благополучию детей и взрослых во всем мире.

Ключевые слова: Лурия; Рейтан; дети с нейропсихологическими проблемами; нейропсихологическая диагностика; нейропсихологическая коррекция

The first I knew about this present impressive volume was at a psychology meeting in Moscow in 2016 at the First World Congress on Mental Health organized by the Union for Mental Health, which I and my dear friend Dr. Darlyne Nemeth attended as plenary speakers as we have done for many professional meetings over decades. One afternoon, Darlyne enthusiastically shared with me that she had a meeting with fellow neuropsychologists about the work of the founder of Russian neuropsychology, Alexander Luria. As a noted American neuropsychologist, Darlyne was especially excited. Her enthusiasm was warranted, as the meeting led to immediate bonding and collaboration with Russian developmental psychologist Dr. Janna Glozman that resulted in this anthology. When she returned from the meeting, Darlyne told me about an exceptionally exciting part of the visit: over tea and cookies, she was offered the honor to hold Luria's original hand-drawn pictures of patients' brain problem areas. Also, she was keen to get started on the project to collate chapters for an edited volume she and Dr. Glozman agreed to edit, about work derived from their respective mentors, Luria and American neuropsychologist Ralph Reitan, to represent the most up-to-date knowledge about the field of neuropsychology.

Now, psychologists and many associated professionals have the opportunity to take advantage of the outcome of their collaboration in this edited volume.

The contents are important, as the field of Clinical Neuropsychology is one of the fastest growing areas of psychology throughout the world. In America, neuropsychology represents the largest Division of the American Psychological Association. Further, the focus on children is crucial, as most of us know the increasingly critical importance of assessing and treating children with learning disabilities, behavior troubles, emotional imbalance, school maladjustment, and difficult parent-child inter-relationships. Also, awareness is increasing with regard to children's struggles with traumatic brain injury, brain tumors or epilepsy, Attention-Deficit Hyperactivity Disorder (ADHD), learning disabilities, intellectual and developmental disorders, and those on the Autism spectrum.

In this volume, eminent neuropsychology experts in research and practice present their important views and work on the theory and practice of brain-behavior functions,

building on the foundations set by the neuropsychology pioneers, Alexander Romanovich Luria from Russia and Ralph M. Reitan from the United States. These two pioneers, themselves students of Russian psychologist Lev Vygotsky and American physiological psychologist Ward Halstead, respectively, and now considered the forefathers of international developmental psychology, along with their disciples, have moved psychology beyond the focus on strict behaviorism to a more integrated understanding of "the role of brain processes in the explanation of the human mind" according to neuropsychologist Antonio Puente, former president of the American Psychological Association (p. xxvii).

The chapter authors can be considered the "new pioneers" of the field. Their work on the evaluation, treatment, and research of brain-behavior functions can be directly traced to the heritage of those noted neuropsychologists and the cross-fertilization of their work in qualitative and quantitative methodology.

As noted by the editors — the newly formed friends and colleagues from that meeting in Moscow — Drs. Nemeth and Glozman note in this volume, "A. R. Luria and R. M. Reitan have independently built outstanding pyramids of neuropsychological knowledge, to the point wherein they are considered by many to be the fathers of international developmental neuropsychology. The purpose of this volume has been to integrate Luria's qualitative and Reitan's quantitative approaches to the evaluation and treatment of neuropsychologically compromised children. Although separated by time and space, Luria and Reitan have offered solid foundations for the understanding of children's brain-behavior development" (p. 305).

As a colleague of Dr. Nemeth who has collaborated with her on many projects related to disaster relief including the cognitive impacts of such events on children and adults, I have been aware of the importance of her specialty and her work. As a clinical psychologist for half a century myself, I have learned much from this cooperation, and now from this volume, as will other readers.

A major lesson from this volume is that the socio-historical/qualitative approach provided by Luria combined with the quantitative ideas of Reitan contribute a powerful conceptualization of how this field of neuropsychology can influence many disparate research areas and disciplines of psychology. Relevant issues range from early learning and speech development, to executive functions, learning disabilities, social interactions, and medication management in varied clinical situations including environmental trauma and complex medical problems. All these areas have benefitted from the innovative thinking and insights of the two pioneers, elaborated by the "new" pioneers who are author chapters in this volume, carrying on the legacy of the two icons.

Certainly a "new pioneer," volume co-editor Dr. Nemeth is a visionary professional who has changed the face of neuropsychology in the United States by her innovative approaches to treatment of neurologically challenged children and adults. In a major leap forward for psychologists, she was instrumental in the campaign for psychologists to get prescription rights, which has been implemented legally in her home state of Louisiana. This is a significant accomplishment, in breaking down much resistance from the medical field, and in negotiating with legislators. She has further innovated a holistic approach

to neuropsychology, by integrating the field of emotions with that of environmental studies, in both her edited volumes (of which I am proud to say I am a co-editor), namely, *“Living in an Environmentally Traumatized World: Healing Ourselves and Our Planet”* and *“Ecopsychology: The Intersection of Psychology and Environmental Protection: Intervention and Policy”* (both from Praeger Press). She has further developed the concept that trauma is retriggered on anniversary dates of the event, and presented Anniversary Wellness Workshops which I have co-facilitated throughout her state on the anniversary dates of environmental traumas like Hurricanes Katrina and Matthew. A shining example of resilience herself, she has authored a book on the subject, *“Innovative Approaches to Individual and Community Resilience: From theory to practice.”*

I have been enormously blessed to be on this journey with her, developing these workshops and creating projects of innovative research and practice. As board members of the World Council of Psychotherapy (WCP), we have presented together about our trainings and workshops on disaster recovery at conferences around the world, from Moscow to Beijing, Paris and Buenos Aires.

The measure of a great professional is passing on her knowledge, which Dr. Nemeth does generously in training a new generation of neuropsychologists, many of whom have gone on to do exceptional work in the field, and some of whom are authors of chapters in this volume. Always forthright in speaking her mind, she has been vocal about extending rights to education for underprivileged students, during her tenures on the Council of Representatives of the American Psychological Association (APA).

Nemeth's accomplishments are extensive. Founder of the first neuropsychology center in Louisiana to treat neuropsychologically compromised children, the Neuropsychology Center of Louisiana, her expertise benefits a wide spectrum of patients with developmental and brain-behavior dysfunctions. Her boundless creativity has led to innovations, including the “Build-A-Brain series,” described in the chapter in this volume on *“Laying the Framework for Developing Executive Functions in Tweens with Learning Disabilities.”* Her leadership has been evident in the many positions in which she has served for her state's Psychological Association, the APA and the WCP, and particularly in her successful and courageous advocacy about obtaining prescription rights for psychologists to prescribe medication.

Nemeth has an extensive history with Reitan, having been trained and supervised by him for many years and being the first professional to use the Reitan REHABIT system, in 1980.

Nemeth's partnership with Glozman is essentially a match made in professional heaven. A disciple of the famed Russian neuropsychologist Luria, developmental psychology professor Dr. Glozman has claimed her own rightful position as the new generation of Russian psychologists. This is evident in her many professional papers and edited book reflecting comprehensive information on both Russian and Western developmental neuropsychology. With extensive expertise and credits in so many fields of neuropsychology — as a neuropsychologist, neurolinguist, research scientist, specialist in neuropsychological assessment and rehabilitation, and professor of neuropsychology, neurogeriatrics, developmental neuropsychology — Glozman is also the leading researcher at Moscow State University Psychology Department and uses Luria methods to evaluate and treat learning

disabled children at Luria's Research Center of Developmental Neuropsychology. Bridging Russia and America, she was also a visiting professor at the University of North Carolina in the USA. Spreading the ideas of her mentor, she organizes the International Luria Memorial Congress, serves as editor in chief of a new international journal, the *Lurian Journal*, and has evolved her mentor's theories to today, developing a new system of scoring Luria's neuropsychological assessment data for children and adults. As if that isn't enough, she has also founded a new branch of neuropsychology, the Neuropsychology of Communication, with published books in Russia, Great Britain and the US.

In an amusing but appropriate metaphor, the co-editors liken their mentors — Reitan and Luria — to the building of the great pyramids in Egypt and Central America.

The architect of the partnership can be considered to be clinical neuropsychologist Dr. Antonio Puente, who introduced Nemeth and Glozman. In his foreword to the book, Puente, professor psychology at the University of North Carolina in the USA, notes how the interface of Russian and American neuropsychology holds much promise, merging the hard science of the west illustrated by Reitan with the romantic cultural-historical science of the east espoused by Luria, to create a "unified and universal neuropsychology."

The American and Russian co-editors, who acknowledge the benefit from their respective mentors Reitan and Luria, elucidate the breadth and depth of the volume in their comprehensive introductory chapter on "*The Contributions of Luria & Reitan to Developmental Neuropsychology and to the Understanding of Neuropsychologically Compromised Children.*" The disciples outline the field of neuropsychology in Russia and America, diagnostic approaches and case examples and assessments of cognitive, affective and behavioral disorders.

In her chapter in this volume on "*Integrating Quantitative & Qualitative Measures with Neuropsychological Assessment and Intervention,*" Dr. Glozman emphasizes the importance of integrating the qualitative methods of Luria with the quantitative methods of Reitan, and of expanding this approach into the mainstream of healthcare practice. She supports her position by citing 1986 work of Horton and Puente, which asserted that neuropsychology can provide valuable understanding in the treatment of such chronic diseases as lupus, chronic obstructive lung disease (emphysema), cardiovascular disorders, and certain types of oncological disorders. She concludes that any medical complication or treatment having a direct or indirect impact on neural integrity should be considered within the scope of neuropsychology. Thus, the stage was set over 35 years ago, and currently expanded, to emphasize the usefulness of neuropsychology beyond neurosurgery and/or special education and into the mainstream of healthcare practice.

Glozman emphasizes the importance of a comprehensive assessment, to include the following: the individual's general characteristics, an assessment of motor activity, an evaluation of gnostic functions, an evaluation of verbal functions, an assessment of memory, and an evaluation of intellectual processes, including reasoning. Further, she maintains the importance of evaluating brain-behavior function well beyond the scope of a questionnaire.

The influence of the early, and new, pioneers in this volume, extends well beyond their respective countries of Russia and the United States. Their work in these chapters provide guidelines to innovative approaches in assessment and treatment which readers from any countries will find important and relevant.

In a chapter on *“Heritage of Reitan and Luria to 21st Century Developmental Neuropsychology,”* Portuguese psycholinguist Joaquim Quintino-Aires, PhD., echoes the support for the work of the early pioneers, emphasizing how studying their work gave him a better understanding of higher cortical functions, dynamic localization, and brain development. Luria and Reitan’s work extends to Portuguese psychology, notes Quintino-Aires, allowing Portuguese psychologists to move beyond the hospital setting into the school and rehabilitation settings. These revelations motivated Quintino-Aires to make the appreciative evaluation that, “The practice of neuropsychology is very beautiful work, not just very useful.” Quintino-Aires, winner of the Luria Award from Moscow State University and head of the Vigotsky Institute in Portugal, found Luria’s concepts of higher cortical functioning of the brain, bottom-up development and the Three Functional Blocks to be particularly helpful in understanding brain-behavior functions. Furthermore, he applied Luria’s concept of Syndromic Analysis to understand the symptoms of brain injury, including the loss of a function, localization of the injury, and development of a rehabilitation plan for that specific problem. Quintino-Aires credits Luria’s groundbreaking book, *Traumatic Aphasia — Its Syndromes, Psychology, and Treatment* (1947), as having enriched his understanding of the theory and practice of functional system reorganization.

In a chapter on *“Combining Qualitative and Quantitative Measures in the Evaluation of Executive Functions in ADHD,”* Russian child neuropsychologist Dr. Irina Shevchenko also supports the blended approach of Luria and Reitan recommended by chapter author Quintino-Aires and Glozman’s recommendation to go beyond questionnaire evaluation. A specialist in neuropsychological assessment and remediation, Shevchenko notes the prevalence of the neurobehavioral diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) in children being particularly high in the United States in 2007, but notes that these statistics could be misleading since they were made on the basis of questionnaires, rather than on full evaluations. While she includes several questionnaires in her examination of children with ADHD — given the influence of Reitan — like the Conners Scales and the Iowa Gambling Task that simulates real-life decision-making, she maintains that combining the approaches of Luria and Reitan allows for a better understanding of the structure of the disorder of ADHD and leads to a more effective approach for prevention and remediation.

To better understand the Reitan approach, Maryland neuropsychologist Dr. Arthur MacNeill Horton, Jr., past president of the National Academy of Neuropsychology and ardent follower of Reitan’s work, offers an in-depth analysis of the various aspects of the adult Halstead-Reitan Neuropsychological Test Batteries (HRNB), the older child battery (HRNB-OC), and the children’s battery (RINB), in his chapter on *“Ralph M. Reitan and the Clinical Interpretation of Neuropsychological Test Data.”* To obtain a comprehensive assessment of functioning, Horton uses Reitan and Wolfson’s General Neuropsychological

Deficits Scale (GNDS) with his own Alternative Impairment Index (AII). Norton, editor of the journal *Applied Neuropsychology-Child*, emphasizes the usefulness of a battery of tests in the GNDS. These include some measurements with intriguing descriptive titles, like the Trail Making Test, which requires visual tracking, simple and complex shifting, and sequencing ability, and the Finger Tapping Test, a measure of gross motor speed. So many other assessments outlined in the chapter captured my attention, like The Category Test that measures the person's ability to learn general abstract principles from sets of stimulus items; the Tactual Performance Test to assesses integration of tactile and kinesthetic feedback, psychomotor skills, and spatial memory; the Speech, Sounds, Perception Test, which requires the individual to attend to tape recorded stimulus words that are variations of an "ee" sound that require the ability to sustain attention, perceive speech sounds and real words; the Rhythm Test, which measures auditory memory, rhythm discrimination, and an attention ability; the Reitan-Indiana Aphasia Screening Test which assesses symbolic related language deficits such as reading, writing, naming, spelling, performing arithmetic, and repeating words and phrases; the Reitan-Klove Sensory-Perceptual Exam, a standardization of a behavioral neurological examination; the Reitan-Klove Lateral Dominance Exam, which assesses preference for use of hand, foot, and eye; and the Strength of Grip Examination, which assesses gross motor strength. The child's version, developed by Dr. Reitan at the Indiana University Medical School, has appropriate variations of these tests. Typically, an intelligence measure is included and various indicators, including the Level of performance, Patterns and relationships of performance, Pathognomonic signs, and a Comparison of the two sides of the body on motor and sensory perceptual measures. Impressively, Reitan use these indicators in order to do a blind analysis of the data with amazing accuracy.

A distinct priority in the analysis of brain-behavior dysfunction is the individual's ability to utilize good Executive Functions (EFs). This concept is explored in the chapter by Nemeth with one of her students and assistant, Kayla Mackenzie Chustz, on "*Executive Functions Defined*." Describing different definitions of EFs, the authors base their definition of EF skills on that proposed by American clinical psychologist Rebecca Branstetter, as "all of the cognitive skills needed to regulate your thinking, feeling, and behavior, often to reach a goal" as well as Luria's definition as "the ability to evaluate a problem, plan a response, carry out that plan, and assess the adequacy of the response within the context of the ongoing environment." The authors explore how these EFs re learned, drawing on the work of Russian psychologist Lev Vygotsky about psychological development in children, that EFs in young children are typically learned through play and that successful play requires self-regulation, which is a major component of EF. Regarding assessment of EFs, the authors give an extensive and very useful listing and review of both Russian and American style approaches. The latter includes measures and questionnaires such as the oft-used Brief Rating Inventory of Executive Function (BRIEF) and the McClosky Executive Functions Scale (MEFS) and the former uses a more cultural-historical approach. Beyond questionnaires, well-known EF measures noted include the Delis-Kaplan Executive Function System (D-KEFS), and the Wisconsin Card Sorting Test (WCST) and

Reitan's Halstead Category Test (HCT), considered as the gold standard, all with intriguing methods of measuring brain-behavior function.

In the subsequent and fascinating chapter on "*Understanding 'Hot and Cold' Executive Functions in Children and Adolescents*," co-authors Nemeth and Chustz elucidate that once EFs have been measured, processes can be taught to determine the efficacy of utilizing these functions. The process involves asking children to ask themselves the following five questions: (1) What is the problem? (2) How can I solve it? (3) Am I using an effective plan? (4) Was my plan successful? and (5) Did my feelings help or hinder my success? The authors point out that the fifth question in this process, which focuses on Emotional Intelligence, is frequently missing in analyses. Consistent with this, research emphasis is often focused on what is called "Cold" EFs, referring to analytic processes in cognition, according to the work of Chavez-Arana and colleagues published in 2018. Yet, an understanding of the affective component of EFs, which is referred to as the "Hot" EFs, is also necessary, for a thorough analysis. Leaving this aspect out can lead to faulty conclusions.

We all know what hot and cold means in life. In neuropsychology, "cold" EFs refer to logical functions and "hot" EFs refer to emotional functions. Children with deficits in cold EFs may have difficulties concentrating on homework, make careless mistakes or misunderstand instructions while those with deficits in hot EFs can be disruptive, make risky decisions and have angry outbursts. In what makes perfect sense, integrating cognition and emotions is crucial for adaptive functioning.

In research, practice and learning settings, it is interesting to learn from the chapter that more focus is being placed on an important aspect of the EFs known as Executive Functioning Dysregulation. This dysregulation is defined by Chavez-Arana and colleagues as characterized by impairments in cognitive, behavioral, and emotional regulation.

The ongoing debate between IQ vs. EQ (emotional intelligence) — that gets ongoing attention — is addressed in the chapter. The authors maintain that as opposed to being opposites, IQ and EQ are inter-related, since it is well known that emotional states — like anxiety and/or depression — which are evident in EQ, can interfere with cognition, evident in measuring IQ. Making the argument here again for a comprehensive view, Nemeth and Chustz emphasize that "for successful problem solving, both the hot and cold aspects of executive functions must be integrated."

Such integration is especially important and necessary in learning settings. Regardless of age, individuals need to be able to integrate their thoughts and feelings in order to learn. This process starts in early age. In their chapter, co-authors Carla Anauate and Edna Maria Severinno Peters Kahhale, both Brazilian neuropsychologists, focus on early intervention, from the prenatal stage to the postnatal stage of children's development. In their contribution on "*Preparing Children to Learn Through Early Intervention*," ten spheres of development are identified: Passive and Active Postural Control, Visual, Manipulative, Locomotor, Hearing and Speech, Talk and Speech, Social Interaction, Personal Autonomy, and Cognition.

Several interesting studies are reported, including on attachment, that thoughts of a mother and music affect physiological reactions in a fetus, and lead to familiarity

connections of the baby to a mother's voice. Research is also noted that has become common beliefs, for example, that babies who undergo stress during pregnancy have less ability to withstand stress in adult life and that babies of anxious mother are more fearful.

The authors make several other important observations about the importance of attachment and brain development, verbal regulation of behavior within the school setting, and playful activities in learning, given that "to play is to learn." They conclude that, "the brain develops better within a stable environment of support and low levels of stress."

Expanding on the concept of stress from the previous chapter, chapter authors and Russian psychologists Dr. Natalia Karpova and Dr. Elena I. Nikolaeva, reaffirm the theme of the book that modern research is an extension of the work by Luria and Reitan. The authors, Karpova, professor at Moscow State Psychology-Pedagogical University, and Nikolaeva, professor at Herzen State Pedagogical University in St. Petersburg, Russia, note that stress can have a significant effect on the development of speech. In their chapter on "*The Role of Family in Speech Rehabilitation of Children with Learning Disabilities: Clinical Observations by Luria & Reitan*," they explore the causes and remediation of communication problems like stuttering, a speech problem with a complex psychological structure. Besides stress, they explain other factors that impact speech development, including genetics and family relations. To assess communication, the authors recommend family intervention and use of parts of the Luria battery. Four intervention stages are cited: diagnosis, invention, active family group intervention, and a two-week course of supportive family therapy.

The value of considering relationships (e. g. in parent-child interactions and through "communities") in the overall development of children with special educational needs (SEN) is highlighted in the chapter by Vitaly V. Rubtsov and Andrey V. Konokotin on "*Formation of Higher Mental Functions in Children with Special Educational Needs Via Social Interaction*." The chapter co-authors, Rubtsov, chair of the All-Russian Federation of Educational Psychologists and honorary professor of the University of Wisconsin, and Konokotin, his doctoral student at Moscow State University of Psychology and Education, cite the interconnectedness of communication and mutual understanding as crucial variables in helping SEN children develop higher mental functions (HMF). This point of view is consistent with those of Vygotsky, who maintained that social development and learning go hand in hand. The authors identify four types of learning communities: (1) precooperative, (2) pseudocooperative, (3) cooperative, and (4) metacooperative, and conclude that, in SEN children, social interactions with normally developing children (ND) are essential for the development of HMF.

Both SEN and ND children can have learning disabilities. In this regard, Louisiana clinical neuropsychologist Dr. Fernando Pastrana Jr., who trained under Nemeth, presents his interesting clinical work done with colleagues at Nemeth's Neuropsychology Center of Louisiana (NCLA), namely, co-authors educational diagnostician Patricia A. McElroy, statistical analyst Scott Johnson and clinical extern Kayla McKenzie Chustz. In their chapter on "*Laying the Framework for Developing Executive Functions in Tweens with Learning Disabilities*," Pastrana describes a unique "Build-A-Brain" program for tweens

(aged 10–14) consisting of small group interactions to facilitate the development of their Executive Functions (EFs). The 14-session summer program encourages children to create, communicate, and compete. Emphasis is placed on activities that facilitate their behavioral, emotional, social, and mathematical development. The Luria and Reitan models of intervention were combined for optimal success. The children, selected for their impaired mathematical skills, were seen twice a week, on Tuesdays for analysis and evaluation, and on Thursdays for intervention. Parent or parent figures participated in the Thursday sessions via a two-way mirror, so that they could transfer the observed techniques to their home setting. A computer program, MobyMax, was utilized in the home setting to improve mathematical skills. Both hot and cold EFs — as described in the chapter by Nemeth and Chustz — were taught in order to maximize children's problem-solving abilities. The children were followed over time, using a wide variety of measures that are as fascinating as the project, showing significant improvements in their problem solving, emotional, social, and mathematical skills. The entire process of the sessions is described, making a really fascinating read of the innovation. Activities like "Guess the Feeling" the "Tinker Toy Activity" and the "Seashore Rhythm Test" evoked my great interest, and agreement that these can be great fun for youth while being exceptionally useful to build their executive functioning. I wouldn't mind participating in such a workshop myself.

Clinical applications are essential to show that the theories actually have a positive impact. This is especially important after environmental trauma, when the executive functions (EFs) of children and adolescents are threatened and must be rebuilt. A major review of research in the field, by psychologist Robin Gay with Dr. Nemeth and myself, showed that trauma and grief after major disasters has a significant impact on children's cognitive processes, as well as on their general mental health. Over many decades of work "on the ground" in settings around the world, I have developed and implemented workshop interventions and trainings to help children cope. The implications, positive impact and applications of this approach on the neuropsychology of children is described in my chapter in this volume, on *"Rebuilding Executive Functions in Environmentally Traumatized Children & Adolescents."* The activities in my model, carried out in a group setting, boost three major aspects of functioning shown by research to be essential for "building back better": resilience, empowerment and community connection. Workshops of my toolbox of activities (in my "Global Kinds Connect Project") designed around these solid psychological principles, have been shown to be effective according to assessments conducted before and after the workshops. The model has been applied in the "Anniversary Wellness Workshops" conducted by myself and Dr. Nemeth in Louisiana to help children — and adults — cope with reactions triggered on the anniversary dates of the natural disasters in that state. Further, the interventions were shown to be adaptable to diverse settings and cultures throughout the world, including after epidemics in Sierra Leone and the Congo, and also after natural disasters, including in Haiti, Japan, China, Sri Lanka, Iran and the USA. The activities revitalized EFs and also self-efficacy and socialization. The activities and techniques in my interventions are relevant to the Reitan's REHABIT system of expressive and receptive language for verbal skills, integration of abstract reasoning and logical analysis skills, and restructuring of visual-spatial, sequential,

and manipulatory skills. In the process, children's left, central, and right hemisphere processing skills, as identified by Reitan, are reintegrated in my model workshop that is fun for youth, but where the interactive activities are also grounded in solid neuropsychological and psychological principles. The multisensory activities, which I describe in detail, trigger neurocognitive process while restoring trust, ensuring safety, assuring attention, moving energy, and boosting self-confidence. Activities apply to varied learning styles, including for kinesthetic learners, visual learners, and auditory learners. Consistent with my advocacy at the United Nations where recommendations are usually made, I propose calls to action to all stakeholders about processes, programs, policies, training and research to promote and preserve children's neurocognitive function in the wake of environmental trauma.

The importance of a consideration of complex medical conditions in neuropsychologically challenged children is emphasized in the chapter by Louisiana neuropsychologist Dr. Tracy W. Olivier, who was fortunate to be another one of Nemeth's trainees and who also subsequently went on to success in the field. I remember well how Darlyne promoted Tracy's work, included her in presentations we made at professional conferences and also in the book she wrote on resilience. In Olivier's chapter on "*Neuropsychological Evaluation of Children with Complex Medical Concerns*," she emphasizes that interventions with these children must begin with comprehensive pediatric neuropsychological evaluations, taking into account their medical condition and treatment settings. For child patients from an early age until age 18, the neuropsychologist and medical specialist must work together to gather comprehensive information and determine the appropriate neuro-medical intervention. In her role as the head of Pediatric Neuropsychology at Our Lady of the Lake Children's Pediatric Development and Therapy Center in Baton Rouge, Louisiana, Olivier works tirelessly with medical professionals to ensure comprehensive assessments and appropriate interventions for neuropsychologically challenged children. The assessment includes the initial interview with the child and family members, a records review, comprehensive testing, a neuropsychological report, and a feedback/follow up reevaluation process. It is not uncommon for these children to have been diagnosed with other conditions, including pediatric cancer, acquired and traumatic brain injuries, and/or intellectual disabilities. At times, performance validity tests may be included. Olivier concludes that "interdisciplinary care is becoming the standard in most health care settings."

Medication or not? It's a question commonly and responsibly considered in all cases of treating dysfunction. It's a question addressed in the chapter "*When Medication may be Helpful*," by co-authors Dr. John Flatt, pediatric neurologist and chief medical officer of the Jason Foundation to prevent child suicide, and Nemeth. At times, they advise, neurobehavioral evaluations and interventions may not be enough and medications may be helpful. In all cases, though, psychological and physical symptoms must be assessed before medication management is chosen. A combination of thorough neuropsychological evaluations and assessment of symptoms and behavior yields the most useful indications for the appropriate course of treatment. Pediatric neurologists and prescribing pediatric neuropsychologists may be called upon to offer medication management for the following disorders that are all exceptionally important: attention deficit and hyper-

active disorders, sleep disorders, seizures and epilepsy disorders, headaches, tic disorders, obsessive-compulsive disorders, aggressive behaviors, drooling, and constipation. To reduce trial-and-error approach to deciding about medication management, pharmacogenomics assessments can be used, such as the Genomind Genecept Assay. In most cases, behavioral intervention is preferable to medication management. And, in all cases, the child's environment makes a difference, including predominantly the family situation, as Flatt and Nemeth note, "good parenting is the first step in this process... medication may help along the way, but it is not the answer. It is merely part of the process." A caring treating professional is also essential. Ultimately, in what I determine can be called the 5 A's, the authors conclude that all children require attachment, attention, acceptance, approval and acknowledgement, which the authors conclude adds up to what we would all agree matters for children's healthy development: love.

With all these rich perspectives presented, this volume presents the most up-to-date thinking about the field of neuropsychology for children, by world experts who are the second generation of those trailblazing neuropsychologists Luria and Reitan and the "new pioneers" building on the shoulders of their mentors, and even by some of the third generation, namely students building on the work of their teacher, co-author Nemeth herself. The contributions focus on the cross-fertilization of the ideas of the most respected founders of neuropsychology, Luria and Reitan, as well as the modern orientation of merging medicine and neuropsychology in the prevention and treatment of children's difficulties. These difficulties include learning disabilities, behavioral disturbances, emotional imbalance, school maladjustment, and parent-child difficulties faced by so many children worldwide in all cultures.

In their concluding chapter on "*Implications for the future*," the volume editors Nemeth and Glzman offer three recommendations for the future: assessment, intervention, and research. The goal is to help children around the world become more resilient, following the definition offered by Nemeth and Olivier, of a 3-part process: being firmly grounded in today and benefitting from yesterday in order to develop better tomorrows. The valuable groundwork in neuropsychology laid by the brilliant pioneers of the field, Luria and Reitan, has given rise to the present knowledge and perspectives reflected in this volume by the "new" generations of pioneers, advancing the field to promote more cognitively and emotionally healthy young people. The ultimate and inspiring message is that all children must be "accepted, protected and respected." Thus, this volume bodes well for children and their families, and for the future of our world.

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