

BEYOND
SMARTER



MEDIATED LEARNING AND THE
BRAIN'S CAPACITY FOR CHANGE

REUVEN FEUERSTEIN • REFAEL S. FEUERSTEIN
AND LOUIS H. FALIK

Foreword by John Bransford

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THE AUTHORS DEDICATE THIS BOOK TO

the loving memory of Berta Guggenheim Feuerstein (Z''L);

our beloved wives Tal Ben-Ari Feuerstein and Marilyn Lubin Falik,
for their love, support, and ongoing dedication and engagement
in the meaning and manifestation of this work;

and to Malka Hoffman,
who dedicated her life to the promotion of
the applications of the work presented in this book.

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Foreword

Reading this beautifully written book on theory and practice brought up a flood of warm and vivid memories from the mid-1970s, when I first met Professor Reuven Feuerstein and several members of his team. I was in the College of Arts and Sciences at Vanderbilt University and had heard that he was giving a talk at the John F. Kennedy Center, a major research institution at George Peabody College, Vanderbilt's esteemed school of education. Along with several students and colleagues, I decided to attend.

The talk was riveting. The preface to this book captures two of the major reasons why I was so moved by the talk. (The preface is in Professor Feuerstein's own words and they are much more eloquent than mine, so be sure to read it.) To foreshadow the discussion, you'll see that he emphasizes two major influences on his life's work: (1) Opportunities to work closely with major scholars—especially Jean Piaget and Andre Rey—and (2) the end of World War II and the subsequent challenge of helping child Holocaust survivors from across the world who were immigrating to Palestine, soon to become Israel.

Many of these youth seemed far less sophisticated developmentally than the youth who participated in studies that Professor Feuerstein had observed and conducted while working with Piaget and Rey, and this was often correlated with low scores. For example, on tests such as the Ravens Progressive Matrices (described later in this book). A natural and humanistic response to these low levels of performance—and many of Feuerstein's colleagues argued for this response with the best of intentions—was to carve out a set of societal niches where these people could be comfortable and become able to support themselves. But what kinds of societal niches? Many argued that they should require only menial skills. Feuerstein disagreed.

The question Feuerstein asked was: Does the possibility exist for a kind of cognitive modifiability that goes beyond helping people simply learn a particular set of facts and manual procedures and, instead, develops strategic context-sensitive skills, knowledge, identities, and habits of mind that transform their abilities to interact with others; to identify problems and turn them into opportunities for new learning; and to shape their environments when needed in order to make learning more effective? Could sensitive approaches to assessment, intervention (mediation), and opportunities

for continued engagement in socially supportive environments allow people to continue to accelerate and expand their learning abilities over a lifetime? Feuerstein's answer to these questions was "yes," and his commitment to this answer prompted his theory of structural cognitive modifiability and the development of a suite of assessments and interventions for helping people succeed.

If you read the preface, you'll see that the idea of cognitive modifiability has been, and still is, often met with great resistance. Part of the reason, I think, is that it has been interpreted differently by various groups of people. Does it mean that one's goal should be to produce large changes in intelligence test scores for individuals? Does it mean that people can be helped to overcome self-doubts and impulsive, non-strategic habits of mind in order to free them to persist and experience more successful future learning? From what I saw, a focus on changes in intelligence test scores was not Feuerstein's major metric for success. One reason for this is that critics could say that he simply "taught to the test."

The second idea of cognitive modifiability that I discussed earlier is one that resonates with me personally and I think also with Professor Feuerstein. It fits numerous cases I have seen of Professor Feuerstein interacting with students and helping them change their confidence and strategies while also getting feedback from parents about encouraging changes in their children that fit more closely with this second perspective. Since modern researchers continue to find evidence that behavior affects brain development and not only vice versa, this second interpretation of cognitive modifiability is not simply a statement that, with practice, people can learn more knowledge and skills yet still remain at a fixed level of development. It is a much more powerful statement that supports the need for continued research on social support for modifiability and what it means and how it works.

It is noteworthy that the authors argue against the suggestion that they are proposing an "inoculation model," which assumes that once thinking is "fixed" through assessment-sensitive interventions, people will automatically be able to function at more complex levels for the rest of their lives. Instead, the authors emphasize the importance of shaping "post-intervention environments" that include tools, people, and other social and material resources for supporting, rather than blocking, continual positive change. This is a view that sees learning and development as dynamic and transactional, with multiple feedback loops that ideally sustain and accelerate ongoing learning as people go about their lives. Research on the nature of these kinds of environments is extremely timely and I'm eager to personally explore in more detail the deep and wise insights on this issue that Feuerstein and his colleagues share with us in this publication. Needless to say, the promising connections to new work in neuroscience represent additional leads that this book will help practitioners and researchers pursue. I hope to be one of them.

I am extremely happy to see this book published. It chronicles a brilliant and much-to-be-revered lifelong commitment to exploring issues of cognitive modifiability. I'm convinced that this foundational work will generate new practices among teachers and school leaders as well as productive discussions and new research trajectories as the field of learning progresses. I wish readers had the multiple opportunities that I have had to see Professor Feuerstein in action. He is a brilliant cognitive clinician, much in the spirit of his mentor, Andre Rey. I also wish people could interact with parents of students who have seen the benefits from the tireless work needed to help their children develop a sense of agency and competence that changes their life chances. These are the data—clinical data—that support a belief in this process.

Of course, clinical examples of success are wonderful to see, but many people feel they have their limitations—especially when one cannot meet the study participants in the flesh. As one of many researchers who has been keenly interested in helping Professor Feuerstein conduct rigorous studies of his theories and practices, I see in hindsight that the field as a whole—or at least a large subset of the field, including many researchers like myself—lacked the kinds of methodological tools and ways of thinking about data that are necessary to truly help Feuerstein and colleagues test and refine their fundamental ideas. In the mid-1970s, the spirit of the times involved a push for data in the form of increased scores on intelligence tests (hard to do in a short amount of time), strong “transfer” from Instrumental Enrichment to increasing success in academic learning, and so forth. Professor Feuerstein knew that these kinds of measures were too blunt to expect strong effects, but what were the alternatives?

The zeitgeist of today's learning sciences is much more conducive to conducting the kinds of research needed to more fully document and explore the processes involved in cognitive modifiability. New paradigms for research are opening up, including neuroscience, of course, but also ethnographic studies that carefully document how the same people often learn differently in a variety of informal and formal environments depending on a variety of learning stances and arrangements, how learning depends on both teacher and student beliefs as well as opportunities for just-in-time mentoring and collaboration, and so forth.

In my opinion these shifts in research paradigms make the theoretical work of Professor Feuerstein and his colleagues more important than ever. This is not unusual in science. For example, new theories of plate tectonics provided a mechanism for the movement of the Earth's crust that made older theories of continental drift much more important, plausible, and subject to exciting research. In the case of the theories of Feuerstein and colleagues, examples that make the theory more important than ever include new methods and approaches for studying the social and cultural nature of learning and adaptation (including its bases in brain) occurring in settings

that are “lifelong, lifewide and lifedeeep” (e.g., see Banks et. al, downloadable at LIFE-slc.org).

I close with a sincere thank you to Professor Feuerstein and colleagues for their highly innovative and immensely hope-inspiring work. By making his work accessible to practicing educators as well as to researchers, this new book can help teachers and leaders see their most challenging students in new ways, provide them with new understandings of how thinking occurs, help them to see and identify specific stage and task specific kinds of thinking in their students, and support growth in all students toward more skillful thinking. Overall, this book provides both researchers and practitioners with a treasure map for additional exciting and vibrant teaching, along with metrics for judging successful learning, and research.

—John D. Bransford,
Shauna C. Larson Professor of the Learning Sciences,
University of Washington; and co-director of the
Center for Learning in Informal and Formal Environments (LIFE)

Preface

In this book we shall deal with the human being's capacity for cognitive modifiability and how this ability of the brain/mind to change informs the way we can help students improve their ability to think and learn. We raise and answer the critical questions relating to students'—or any human being's—ability to change, and be changed by, experience. It is an interesting and important issue that continues to be controversial in the fields of education, psychology, and social policy. After many years in which the question was not addressed—more recently in response and reaction to the development of cognitive psychology and changes in the sociopolitical climate—a number of books have appeared that have voiced sharp opposition to the possibility of changing intelligence—or in our words, the individual's thinking ability. However, in a positive vein, these positions have also aroused a storm of counter-reactions, arguments, and discussions, which in themselves testify to the importance that is today attached to the issues—to the nature, development, and capacity for intelligence and learning, and the role of thinking skills as factors that determine a person's fate in the development of human society.

From a historical standpoint, two totally different encounters led me (Reuven Feuerstein) to develop the theory of structural cognitive modifiability (SCM): first, my exposure to Jean Piaget, who can be described as the modern founder of developmental cognitive psychology; and second, my encounters and responses with the children who survived the Holocaust during World War II in Europe.

While a student and participant in the Geneva Institute of Jean Piaget, I encountered Professor Andre Rey, a member of the faculty of the Institute. Because of Professor Rey's creative mind, and his early conceptualizations of alternative approaches to the assessment of learning and cognitive functions, I received encouragement and support to develop my work. This encouraged me to think about the processes and potential to change intellectual and cognitive functions and to assess them in new and different ways. Andre Rey was my mentor and became my colleague. He came with me to meet the children of the Holocaust and worked with me there and in Israel to further develop techniques and interventions.

In my work with Piaget, who was one of the great believers in the decisive influence of thinking on the human being's adaptive processes, I brought a perspective influenced by my knowledge of the then-influential dynamic psychology of Freud, Jung, and the somewhat lesser-known Szondi. These were the major points of view at the time, in the early 1950s, and they attributed the main causes of human behavior to uncontrollable inclinations and drives originating in the subconscious mind. For example, Szondi believed heredity played a decisive influence on a person's behavior and all of his or her choices. He coined the term *operotropism*, referring to the unconscious inclinations that we possess for certain areas of involvement.

This history is recounted here because it points to the extent to which the early psychodynamic psychologists attached very little importance to the cognitive system, which contains the thinking functions and oversees information-processing, and foregrounds my early need to challenge these assumptions. I began to argue against the point of view that the impulses that guided behavior (and learning) were largely emotional in origin and that the thinking component—the ability to organize one's perception, to collect data, and to turn it into new sources of knowledge—was negligible.

Presenting a theoretical alternative to the emotional conceptualization were the behaviorists, who focused almost exclusively on behavior and its outcomes and showed no interest in its origins. In the final analysis, they too left very little room for thinking itself.

What were the consequences of this dichotomy? People with a high mental capacity constituted ostensible proof of the marginality of thinking ability on the development of personality and mental structures—they had the skills and propensities as a consequence of their dynamic histories, and there was nothing much you could do for them. Many even argued that it was disturbing to attempt to intervene in such situations. Educators who were influenced by these psychodynamic energetic concepts with regard to the functioning of the human being felt that it was their responsibility simply to liberate the powers of children and to refine their impulses. They did not consider thinking to be an important factor for connecting the stimuli experienced, nor did they consider how what the person derives from experience can become a factor regulating responsive behavior.

In Piaget, I found an island of thought about the cognitive system. Piaget asked, for example, how children construct their worlds by means of thinking and acting as determined by the maturation of the brain and acting according to the relevance of the objects to which the individual is exposed. According to Piaget, the cognitive system develops structures and operations of thinking that are created in the course of interactions between the self and the world at various stages of development and maturation. These thinking structures (Piaget called them schemata) enable a person to organize the world that is experienced and plan it, to create new information from what is not experienced directly, and to build in thought an expanded world that is planned and organized.

Piaget's theory planted in me the hope and potential for helping child Holocaust survivors. My encounter with them constituted a second source of the theory of structural cognitive modifiability. I first met the child Holocaust survivors in 1944 and 1945, when I myself was a new immigrant to what was then Palestine and was later to become the state of Israel. I arrived in Mikve Yisrael as an instructor. It was the first residential agricultural school that received children from the Holocaust, and its major goal was to rehabilitate them from their traumatic experiences. I found myself among children who had undergone a very traumatic period in an illogical, disorderly, and brutal world without the means of adaptation. I had worked with such children in Bucharest before becoming an immigrant myself. In both cases, I asked myself how it would be possible to create thinking processes in such children, and I wondered about the significance of thinking as a means of processing the chaotic world they had lived in. I was with them during the nights when they relived all the horrors they had gone through, and I asked myself, "How will I be able to speak to them, tomorrow morning, about what they had learned, or about Bible chapters, or about any other study subject?" The question that bothered me most of all was: Were these children capable of change, after all that they had been through?

In Piaget's theory, through the importance that he attached to the thinking element, I found confirmation of the possibility of drawing these children out of the chaos and of building for them a new life through the rehabilitation of their thought mechanisms.

Piaget's great contribution was in adding to the magma—to the central nucleus of life, made up of emotions, inclinations, and drives—the emergent cognitive skills that could be assumed to be gradually created from it. Following my understanding of Piaget, and my previous experiences, I came to recognize the need to give thinking—the mind and an active and interactive intelligence that organizes the world and plans ahead—a central position in a person's life.

This book, and the rationale, theories, and practices developed herein, is the outcome of this need and the struggles that ensued. In the opening chapters of this book we raise three questions, which have guided the development of my work and that will accompany us throughout this book.

The first question is: *What is the significance of thinking as a decisive factor in determining the human beings' behavior, its place, its status, and its contribution to achievements in society?*

The second question is: *Is it possible to modify thinking?* That is to say, can one change the intelligence and ways of learning of a person, or are they like the weather, which we often talk about but about which nothing can be done?

Assuming that intelligence plays an important role in determining the level of a person's functioning, and assuming that, in fact, one can change one's functioning, the question must be asked, and this is our third question: *How do we do it? How do we modify a person's functioning?*

These three questions have proven to be relevant not only for children of the Holocaust, who were my first concern, but also for culturally deprived and culturally different children, and children with chromosomal and genetic deficits. Modifiability applies to them and can be applied to a wide and diverse range of human conditions. This book is about the answers to these questions. Our goal is to present this in such a way as to be accessible to parents, teachers, and all others who have a need and an interest in the concepts and potential of modifiability to improve the human condition.

The terms *mediator* and *teacher* are not used interchangeably in this book. Teachers must often transmit knowledge and skills, as must parents. Mediation is an intentional interaction with the learner, the purpose of which is to enhance the learner's understanding beyond the immediate experience and to help the learner to apply what is learned in broader contexts—goals that often go beyond the simple transmission of knowledge, but which are necessary enhancements. However, it is important to understand—as is discussed in several chapters of this book—that parents are the first and intuitive mediators of the world for their children, and teachers have the opportunity to play the same role with their students. This book is designed to enable both teachers and parents to become more intentional and knowledgeable in this process and to capitalize on the power and meaningfulness of mediated learning experience. We hope that readers will come to understand the term *mediator* to include a wide range of potential. For readers who wish to study this material further, we have compiled an annotated bibliography at the end of the book.

This book originated in a series of lectures that the senior author gave on Israeli radio almost a decade ago. Whenever the text refers to "I," it is the voice and experience of the senior author, Reuven Feuerstein. The original lectures have been expanded for this book, bringing forth the considerable further developments in theory, concept, practice, and neuroscientific research that have occurred in the almost decade since the original lectures were conceived and delivered.

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