

What Learning Looks Like

Mediated Learning
in Theory and Practice, K–6

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Foreword by James Bellanca



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Introduction

THIS BOOK CONTAINS a multitude of ways to interact with students in order to increase their learning capacity. The book opens new doors for teachers and children by demonstrating proven teaching techniques to help children learn based on the work of Reuven Feuerstein, a theoretically oriented cognitive and clinical psychologist. Shown in scenarios from museum exhibits and classrooms, Feuerstein's techniques help educators to structure experiences that stretch children's abilities to think along many dimensions. These scenarios show that learning is joyful and that children can master hard content and remote ideas through mediation, the theory and practices that are the meat of Feuerstein's work. Two ideas that are important in reading this book are mediation and cognitive deficiency.

MEDIATION: A BRIEF DESCRIPTION AND EXAMPLES

Mediation means any interaction in which an adult *intends* to convey a particular *meaning* or skill and encourages the child to *transcend*, that is, to relate the meaning to some other thought or experience. Mediation means interacting with *intention*, *meaning*, and *transcendence* with the intent of helping children expand their cognitive capacity, especially when ideas are new or challenging.

Watch mediation happen in the following lesson where a teacher uses an overhead projector for the first time. Notice how the teacher, with a class of 30 students, picks up on what a student says and gradually sharpens the student's thinking.

Student, looking for the first time at a projected image: "Wow! That's like that helium balloon."

The student has made an analogy: Something small becomes large virtually instantaneously.

Teacher, affirming the student's observation, naming the thinking skill he uses, and with the *intent* of encouraging him to be precise: "Good analogy! What is similar about the image and the balloon?"

Student, with great assurance: "They both get big quick!"

Teacher, questioning to determine what the student is focusing on and with the intent of guiding the student to change his expression from the fuzzy "they" to an exact description of the content: "Can you tell me exactly what *they* is?"

Student: "The picture and the balloon."

Teacher, naming what the student did well: "Good! You used precise names."

Then, with the intent of urging the student to compare: "What is *different* in how the picture and the balloon become large?"

Student, with some hesitancy: "That projector done it here and, uh . . . that thing done it there."

Teacher, with the intent of seeking more precision: "Does anyone know the precise name . . . ?"

Chorus of four voices: "Helium tank."

Teacher, glad the students know the name, but with the intent of stimulating them to analyze the effect of the helium tank on the balloon: "What is the relationship between the helium tank and the balloon?"

New student voice: "It blows up balloons."

Another new student voice: "Helium *inflates* balloons."

Teacher, addressing the initial student with the intent of having him gather data: "Now! Notice carefully! Take your time. Then, enumerate what differences you see between a projector and a helium tank."

Gradually, the teacher encourages the students to flesh out the analogy with evidence, each time stating the intention of her question and naming what thinking skills students use in their answers. In this way, the teacher builds the students' capacity to observe carefully and to name, compare, and identify. Simultaneously, the teacher makes them aware that the thinking skills they are using include: increasing vocabulary, observing, identifying cause and effect, and building relationships.

At the end of the discussion, the teacher bridges from the example at hand to something different by asking the students: "To what else can you apply the analogy of something small instantly becoming big?" This is *transcendence*, one of the most important parts of mediation—encouraging students to link what is currently being considered to something that they experienced in the past or could experience—or imagine—in the future, and to form relationships.

This interchange is an example of mediation because the teacher makes her *intention* clear to the students, maintains focus on the *meaning* of particular stimuli, and challenges the students to "*transcend*"—to apply the same analogy to different examples. In the process, the teacher learns about different students' command of vocabulary, facts, and thinking processes.

Mediation can be used with students of any age, with any subject matter, and with as many as 30 or as few as 1 student. Mediation can be as simple as an adult's excited comment, "Look!" followed by questions such as: "What do you see here?" "What does it remind you of?" "How do you think this happened?" "Could you make something like this happen?" The attitude of the adult is a critical factor in stretching children's interest.

A WORD ABOUT DEFICIENT COGNITIVE FUNCTIONS

Many conditions are defined by the words *cognitive deficiency*. A current article in the French journal *Acta Paediatrica* states: "A mild cognitive deficiency was defined

as a Mental Processing Composite score on the Kaufman Assessment Battery for Children test of between 70 and 84" (Beaino et al., 2011, p. 370). The authors, who are from the Epiage Study Group, say that the term *cognitive deficiency* is "a complicated multi-factorial issue" that depends on both biological and environmental factors. A lot of conditions fall under "cognitive deficiency" and they are varied in their severity.

In his work as a cognitive, developmental, and clinical psychologist, Feuerstein pinpoints problems (ADHD, Down syndrome, autism) through various accepted means of evaluation and remedies them via therapeutic means such as dynamic assessment, a step-by-step approach in which an assessor tests to see what a child can do on a given task, immediately teaches any skill seen as missing, and immediately tests again on a similar task to determine the child's potential to learn. Feuerstein's lifelong commitment to working with children on whom other therapeutic treatments were unsuccessful is testament to his belief in human potential even when other approaches have failed. Feuerstein has been an iconoclast in arguing against labeling children and uses the words *deficient cognitive functions* as an overall phrase to cover many very specific behaviors—for examples blurred and sweeping perception or inability to select relevant cues in defining a problem. Cognitive functions that Feuerstein considers deficient are fully delineated in Appendix A.

READING THIS BOOK

This book was born from the authors' shared belief that museums are fertile laboratories for trying new ways to help children learn. Feuerstein sees more stimulation per square foot in hands-on museums than anywhere. Both authors believe in museums' potential as showcases for fostering children's cognitive processes through mediation. The book makes Feuerstein's theories accessible through a multitude of examples so that educators can easily understand how to employ his mediation techniques. Previously, his ideas were mainly described in thick textbooks for teachers and teacher educators, journal articles and Ph.D. theses, or news articles.

The book has, in effect, two first chapters. Chapter 1 shows by examples what mediation means; Chapter 2 lays out the theory of mediation. If you prefer to begin with examples, read Chapter 1 first; if you prefer a theoretical perspective, begin with Chapter 2.

Examples in this book show students from about age 5 to 11 at various levels of achievement, including some whose thinking is not well developed because of life circumstances such as economic poverty, war, immigration, or genetic makeup. We use many museum examples because exhibits are readily available, diverse in content, and expressed in varied modalities—three dimensions, moving images, text, photos and drawings, live presentations, original art, elaborate dioramas, and hands-on props. Because they are so diverse, exhibits are unusually effective at arousing interest. Once interest is aroused, mediation can help children increase their capacity to focus, observe, analyze, and express themselves.

In using museum exhibits, we generalize the techniques of mediation by:

- translating mediation into numerous, varied teacher/student interactions;
- highlighting the three-way relationship between the person mediating, the child being mediated, and the stimulus that is used as the content of the mediation;
- explaining the three essential acts of a mediator:
 - ✓ intention to help children grasp certain content, concepts, and thinking processes,
 - ✓ selection of specific meaning to convey,
 - ✓ transcending, that is, relating the meaning at hand to something remote.

CHAPTER SUMMARIES

In this book you will see how learning to use exhibits effectively can impact how we help children learn in *any* environment. The following summaries show what readers can expect.

Chapter 1: Readers learn how to turn children's responses into thinking responses. Many scenarios show why children fail to learn and how to change experiences so children do learn. Common myths about learning are debunked.

Chapter 2: Readers gain understanding of the theory of mediation as they learn about its genesis and definition; explore the relationship between teacher, student, and lesson; and think about what it means to mediate with meaning, intention, and transcendence—what Feuerstein calls the three essential acts of a mediated exchange.

Chapter 3: Feuerstein Instrumental Enrichment (FIE) is the title of the series of diagnostic and classroom exercises that feature prominently in Feuerstein's work. Here, readers see FIE in action in classrooms.

Chapter 4: Readers see the techniques of meaning, intention, and transcendence at work in two different classroom lessons and in a museum exhibit. All three scenarios show exemplary mediation.

Chapter 5: Through scenarios, readers see the meaning of four acts that are basic to all thinking: attention, imitation, spatial orientation, and movement. They learn why these acts are foundational thinking skills.

Chapter 6: Readers learn how to use two of Feuerstein's tools. One, the Cognitive Map, is a means of analyzing the cognitive and motivational aspects of an experience. The other, Thinking Deficiencies, is a means of analyzing what children's responses to an experience show about their thinking capacity.

Chapter 7: This chapter shows how to use rich exhibits to best advantage in learning. Watching many scenarios, the reader sees the importance of such techniques as repetition, variety, modalities, detail, redundancy, aesthetics, and conflict-producing material. We explain the impact of these techniques, which are applicable outside museums in classroom lessons and other learning experiences.

- Chapter 8: Through scenarios, readers see a second set of brain functions that support strong thinking and the techniques that enable students to acquire them. The brain functions are learning to feel empathy, using many varied modalities, collaborating, and engaging in complex thinking acts.
- Chapter 9: Readers' imagination is stimulated by thinking outside the box about collaboration between schools and museums. For example, "blue sky ideas" suggest various museum-generated teacher guides, a youth service corps, student-made exhibits, and diverse apprenticeships.
- Chapter 10: Readers learn how to build strong thinking in a context that explains each of five different kinds of experiences and how each boosts the brain. The experiences are incongruence, repetition, transformation, illusion, and tactile/visual stimulation.
- Chapter 11: Readers see the role of motivation in thinking and read suggestions for changing a child's negative affect. They examine examples of the progression from concrete to abstract thinking and, in the context of some recent research on the brain, watch two experiences designed to challenge thinking.
- Chapter 12: Practical advice guides readers in preparing for and following up on museum visits or other field trips—discussions with students and activities to prepare for a visit, what to do on the way, at arrival, during a visit, and after.

KNOWING YOUR AUTHORS

Reuven Feuerstein and Ann Lewin-Benham come to this book with varied but complementary experience. The authors' collaboration maintains each one's voice. Feuerstein's theories, techniques, and instruments are so highly developed and refined that his authorship is apparent in their descriptions. Likewise, the explanation of what and how children learn are Feuerstein's insights.

Ann Lewin-Benham's visits to museums throughout her life, her decades as a museum founder and director, and her varied roles in education are apparent in the numerous examples from classrooms and museums. Her hallmark as an author—making complex ideas accessible—is evident in the clarity with which she describes Feuerstein's voluminous work.

This book was Feuerstein's idea. His numerous visits to Capital Children's Museum (CCM) in Washington, D.C., founded by Lewin-Benham in the 1970s, spurred him to ask her to collaborate with him. Their partnership has extended over decades.

Reuven Feuerstein

It was known in the village of Botosani, Romania, that Reuven Feuerstein, born in 1921, learned to read at age 3. He regularly read both his mother's Bible and a book of stories, *Tseena Ureena (Go Out and Look Oh Girls)*. Based on "The Song of Songs," the book interprets the Bible, embellishing it with legends and fables.

These rich dramatic commentaries are typical of oral transmission and prominent in Jewish study. The story of Jacob begging Joseph, his son, not to let him be buried in Egypt had a profound impact on Feuerstein as a youngster—a father confessing and asking his son’s forgiveness, a mother rising from the grave and weeping, voices coming from the heavens. From age 3 to 7, Feuerstein was immersed in these stories, the images and sounds permeating his mind, echoing in his dreams, and attuning him to the power of the written word.

When Feuerstein was 5, the father of a 15-year-old approached him: “Please teach my son, ‘Chayim-the-Simple,’ to read; let me die peacefully knowing that my oldest son will be able to say kaddish over my grave.” (Kaddish, called the prayer for the dead, is as old as Judaism itself.) The father’s fervent plea was Feuerstein’s first indication that he was destined to be a teacher. As his success with Chayim-the-Simple became known in the village, other parents, desperate about their children’s reading, approached Feuerstein.

Even as a child, Feuerstein felt powerful in his teaching ability. He had studied the Bible in long days at the Heder (Hebrew school), and at night, in the tradition of orthodox Jews, his father had quizzed him on what he learned. At Heder, Jewish males search for layers of meaning in every word of the Bible and in commentaries written by great spiritual leaders over Judaism’s almost 6,000 years. Feuerstein says this study fostered the cognitive dimension of his thinking. By age 8, Feuerstein was giving lectures and believed he had enough experience to teach the Bible in Hebrew to young adults preparing to live in Israel. By age 12, he was reading the Bible in German.

Feuerstein’s clinical work began full force in Israel in 1945 as youth were being resettled after the Holocaust, starting with the Polish children from Teheran. Herded from their homes, these children were exiled to Russia, where they found themselves on the German/Russian war front. There, they literally ran from place to place looking death in the eye, learning how to escape from Buchenwald, Auschwitz, and other living hells. Those who managed to survive were rounded up at the end of the war and sent through Teheran to Israel. Their gripping story is told in the book *The Teheran Operation* (Omer, 1991). Survivors of war and victims of its brutalities, the youth understood that their lives—and the survival of Judaism—depended on the success of the new state of Israel. Feisty as starving dogs pursuing prey, many became heroes in the War of Independence (1947), where many died fighting to make the dream of the Israeli state a reality.

The plight of these youngsters compelled Feuerstein to help them overcome the horrors they had experienced. So began the work that ultimately yielded his theories and applied programs. Many questioned whether the youth could learn at all. Angered by the doubters, Feuerstein countered for his charges: “Don’t ask me what I know! Ask me how I can learn!” Over the ensuing decades, Feuerstein, with numerous colleagues, fleshed out the work. The powerful theories and numerous applications have changed the lives of many people.

Initially working closely with the brilliant psychologist Andre Rey, 14 years Feuerstein’s senior, the two used existing psychological tests—many devised by Rey—in a new way and pioneered the form of testing now known as dynamic assessment—a measure not of what individuals know but of their potential to