



An Interdisciplinary Approach to Visual- Spatial Processing

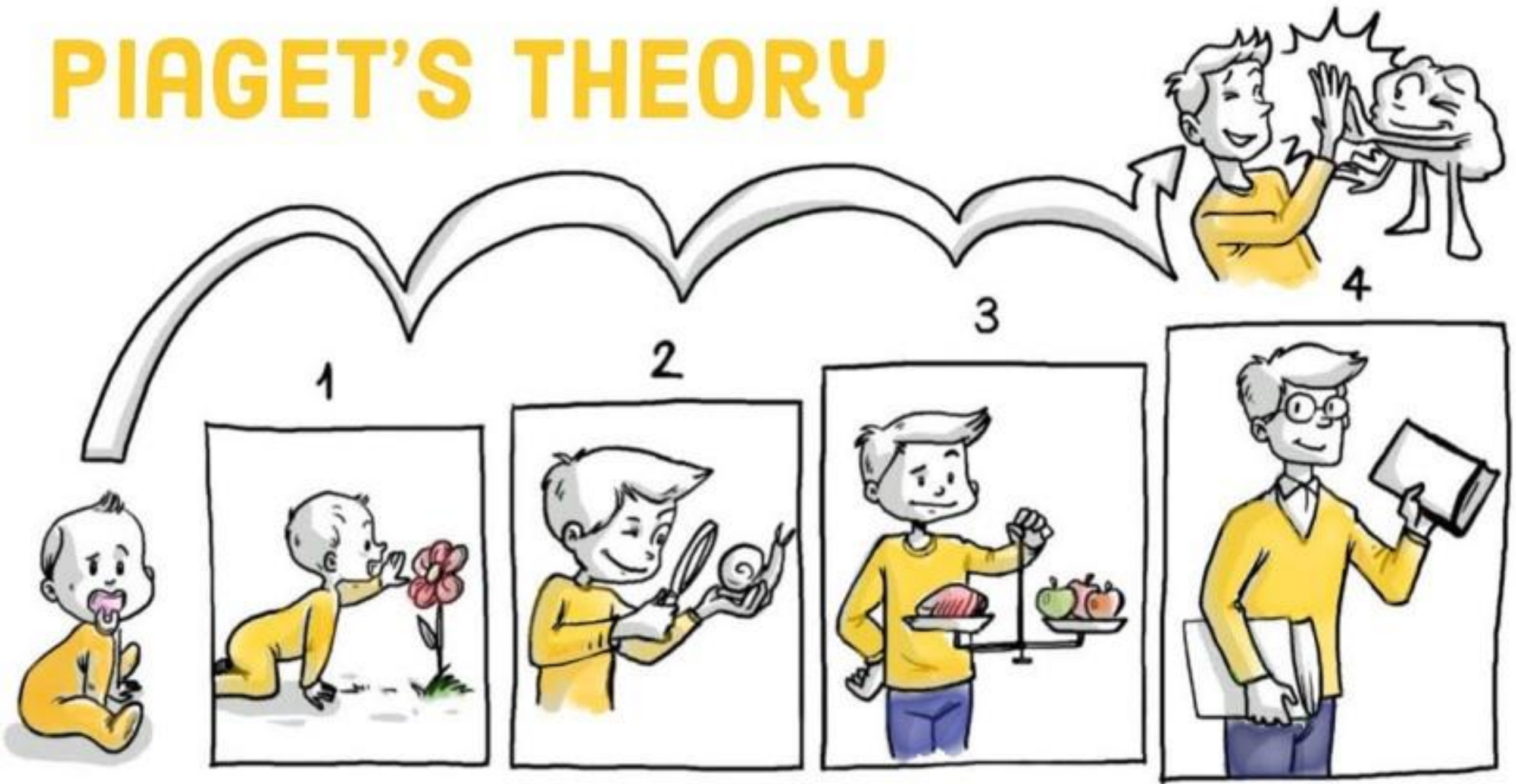
Dr. Mehrnaz D. Azimi Green

Kraskin Invitational Skeffington Symposium 2023





PIAGET'S THEORY





Jean Piaget, PhD (1896-1980)

Piaget's Theory of Development of Intelligence

- Meaningful Experience
 - Prior knowledge
 - Physiological maturation
 - Desire
- Scheme is created
 - Unit of intelligence
 - Number of schemes possessed is one's intelligence in that aspect



A large, stylized red letter 'D' with a white outline and a drop shadow, positioned to the left of the first definition.

Development - what is the child able to cope with functionally and emotionally?

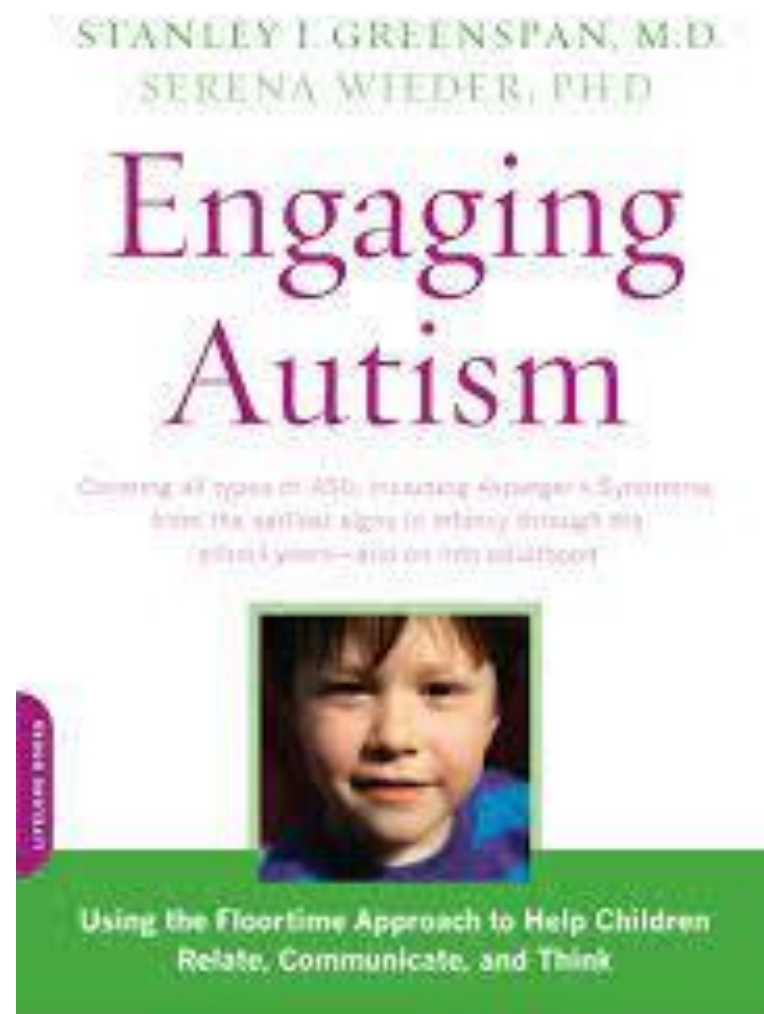
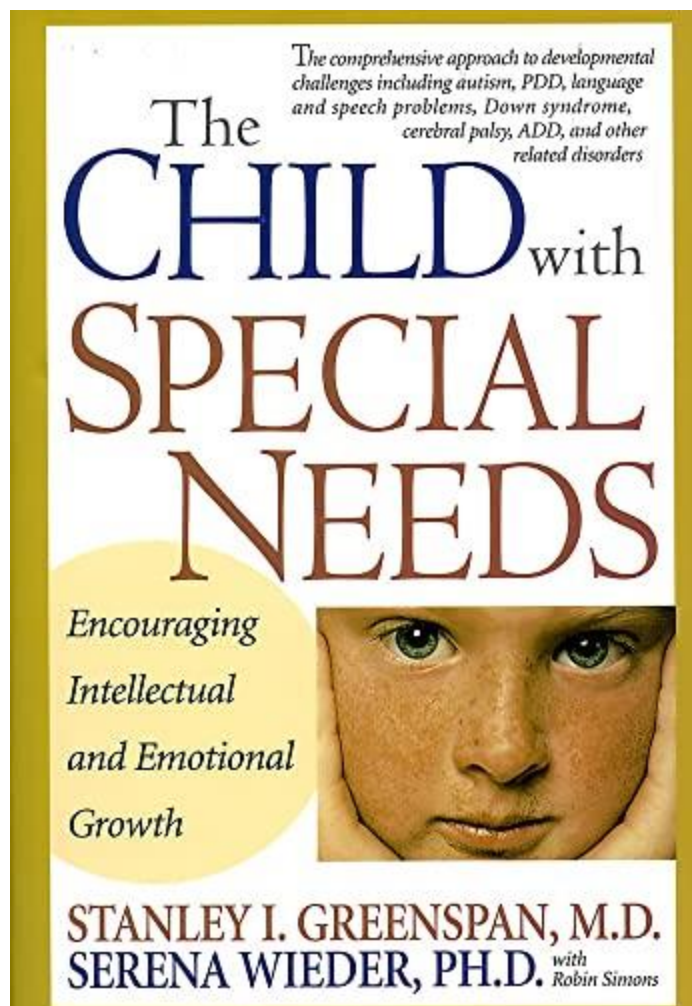
A large, stylized green letter 'I' with a white outline and a drop shadow, positioned to the left of the second definition.

Individual - what are the child's specific strengths and weaknesses (eg motor skills, sensory or language)

A large, stylized blue letter 'R' with a white outline and a drop shadow, positioned to the left of the third definition.

Relational - supporting and enhancing the relationship with the primary caregiver to help the child's development





◀ 20 ▶

Visual-Spatial Thinking

Harry Wachs, O.D.

THE THEORETICAL BASIS OF VISUAL-COGNITIVE INTELLIGENCE

Jean Piaget and Hans Furth subdivided intelligence into three categories: (1) biological intelligence (Furth's term), (2) sensorimotor intelligence, and (3) operational intelligence (Furth, 1986).¹ Biological intelligence is prewired in utero and is manifest after birth in the form of developmental reflexes. Sensorimotor intelligence can be referred to as "action knowing," and continues throughout adult life. When Piaget discovered object permanence (which occurs developmentally in a child around 2 years of

between the ages of approximately 2 and 7 years of age (Furth & Wachs, 1974). Extending Piaget's theory from object permanence through concrete operations—the period when a person can use reasoning to tap sensorimotor intelligence—the term describes the child's ability to apply reasoning to sensorimotor experiences once the child can mentally manipulate his or her visual-spatial world. During this period, the child's action knowing can be enhanced by reasoning or operatory thought.

Piaget's theory can be applied to all individuals, impaired or nonimpaired. Its application includes the autistic spectrum from

Greenspan SI, Wieder S. The interdisciplinary council on developmental and learning disorders diagnostic manual for infants and young children - an overview. J Can Acad Child Adolesc Psychiatry. 2008 May;17(2):76-89. PMID: 18516310; PMCID: PMC2387109.



[J Can Acad Child Adolesc Psychiatry](#). 2008 May; 17(2): 76-89.

PMCID: PMC2387109

PMID: [18516310](#)

Language: English | [French](#)

The Interdisciplinary Council on Developmental and Learning Disorders Diagnostic Manual for Infants and Young Children – An Overview

[Stanley I. Greenspan](#), MD¹ and [Serena Wieder](#), PhD²

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[Abstract](#)

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Objective

To describe the Interdisciplinary Council on Developmental and Learning Disorders Diagnostic Manual for Infants and Young Children (ICDL-DMIC) created by representatives of the Interdisciplinary Council on Developmental and Learning Disorders

Axis 1: Primary Diagnosis

- 100. Interactive Disorders
- 200. Regulatory-Sensory Processing Disorders
- 300. Neurodevelopmental Disorders of Relating and Communicating
- 400. Language Disorders
- 500. Learning Challenges

With a consideration
of contributions
from the
following
axes

Axis

Functional, Emotional
Developmental

Axis

Regulatory-Sensory
Processing Capacities

Axis

Language Capacities

Axis

Visuospatial Capacities

Axis

Child-Caregiver and
Family Patterns

Axis

Stress

Axis

Other Medical and
Neurological
Diagnoses



THE LEARNING TREE

GREAT KIDS CAPACITIES

- CURIOSITY
- INTERNAL DISCIPLINE
- SELF ESTEEM
- LOGICAL THINKING
- MORAL INTEGRITY
- ENGAGEMENT
- CREATIVITY
- COMMUNICATION
- EMOTIONAL RANGE
- EMPATHY

ACADEMIC SKILLS

- MATH THINKING/ REASONING
- ORAL/ WRITTEN EXPRESSION
- READING COMPREHENSION
- ORGANIZATIONAL SKILLS

FUNCTIONAL EMOTIONAL DEVELOPMENT LEVELS

- Logical Thinking and Communication
- Meaningful Symbolic Communication
- Social Problem-Solving and Continuous Flow
- Intentionality/ Two-Way Communication
- Engagement
- Shared Attention



- SENSORY MODULATION
- EMOTIONAL MODULATION
- MOTOR PLANNING & SEQUENCING
- AUDITORY PROCESSING
- VISUAL PROCESSING

REGULATION



The Developmental, Individual Difference, Relationship-based Model

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Dr. Serena Weider

- ▶ “Poor visual spatial knowledge will interfere with movement, sequencing and learning language because visual experiences will be distorted or inconsistent.”
- ▶ “Poor visual spatial knowledge can derail daily adaptation, executive functions, interactions with family and peers, and learning.”
- ▶ “Poor visual spatial knowledge can interfere with symbolic development and abstract thinking”



The Challenges:

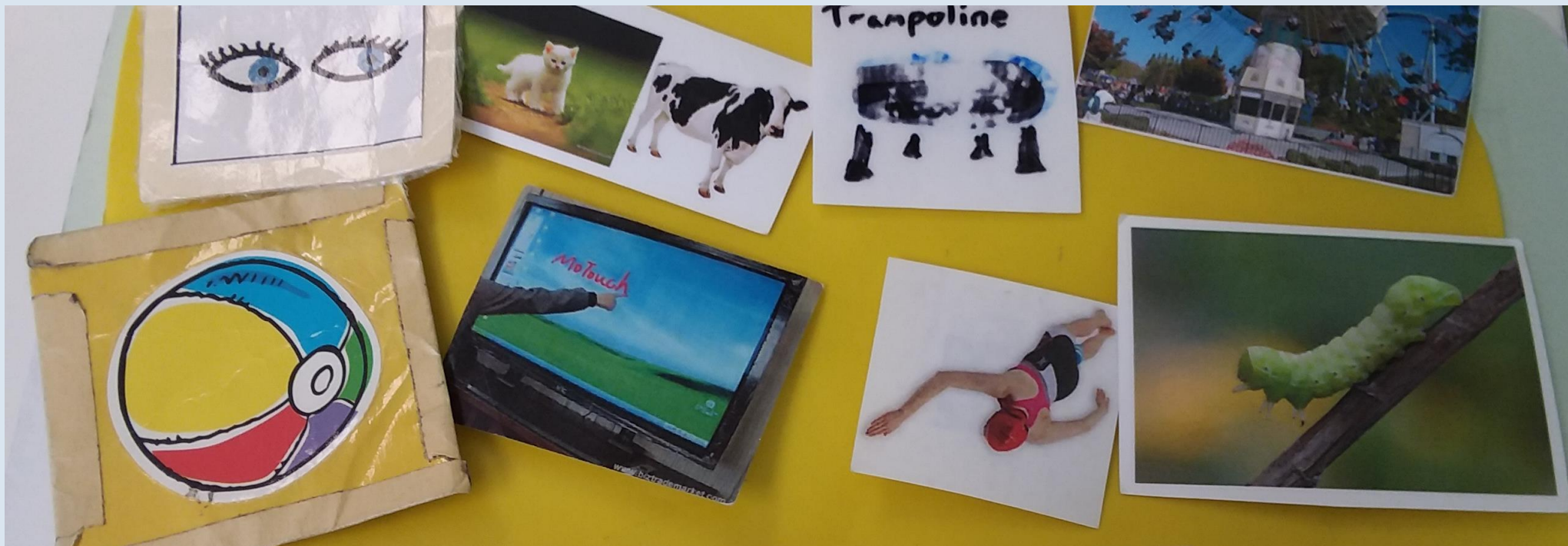
Gaining and maintaining attention

Eliciting participation for activities perceived as difficult

Providing the “AHA!” novel experience



VISUAL SCHEDULES

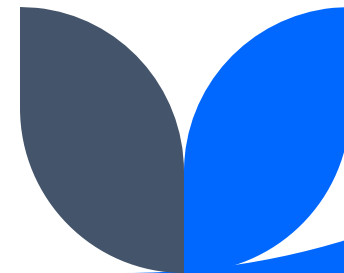


MOTIVATION

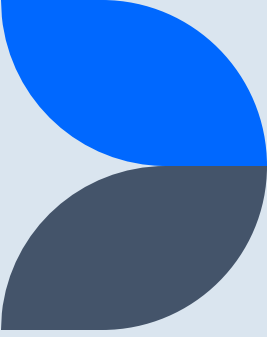
Individualize your tools



Have fun



Floortime Strategies frequently used in Visual-Cognitive Therapy



DO NOT
TREAT
AVOIDANCE
OR “NO” AS
REJECTION!!

Position
yourself in
front of the
patient

Insist on a
response

Do what the
patient tells
you to do;
take turns
being in
charge

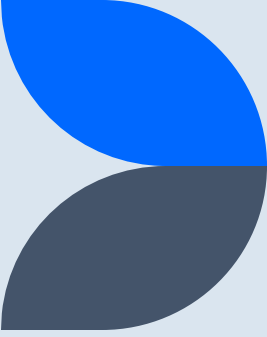
Floortime Strategies frequently used in Visual-Cognitive Therapy

Make the wrong move
and have them
correct you

Do what the patient
tells you to do; take
turns being in charge

Problem-solve to deal
with anxiety
(separation, fear,
aggression, etc.)

Floortime Strategies frequently used in Visual-Cognitive Therapy



Provide visual cues, such as picture schedules, to help them stay regulated and on track

When they persevere, join in and make it interactive

Encourage self-regulation

Be empathetic and ready to listen; children can't always leave their problems at the door

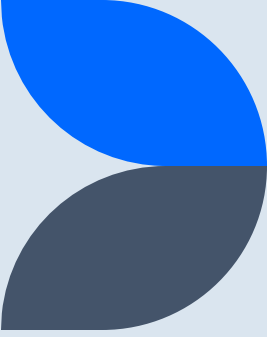
Floortime Strategies frequently used in Visual-Cognitive Therapy

Allow frequent sensory-motor breaks or incorporate them into therapeutic activities such as bouncing, swinging, rolling, spinning, deep pressure, etc.

Use gestures, tone of voice, and body language that are familiar to the patient to accentuate what you say and do



Floortime Strategies frequently used in Visual-Cognitive Therapy



Be flexible in your approach; sometimes there is more than one way to get the job done

Identify and praise appropriate behavior

Set limits, but make sure they understand the rules

Floortime Strategies frequently used in Visual-Cognitive Therapy

Be ready to take on a role or use a motivating theme or idea; it never hurts to be well-researched



VC Therapy in Action-List

List



VC Therapy in Action-Rainbow



VC Therapy in Action-Fixation & Tracking



VC Therapy in Action-Body Lifts



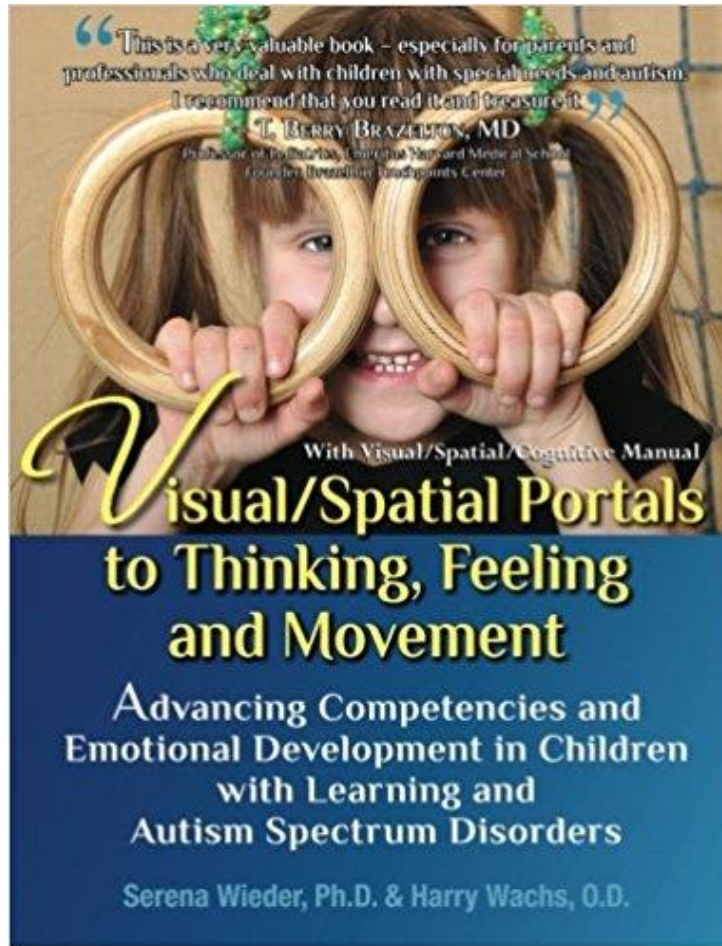
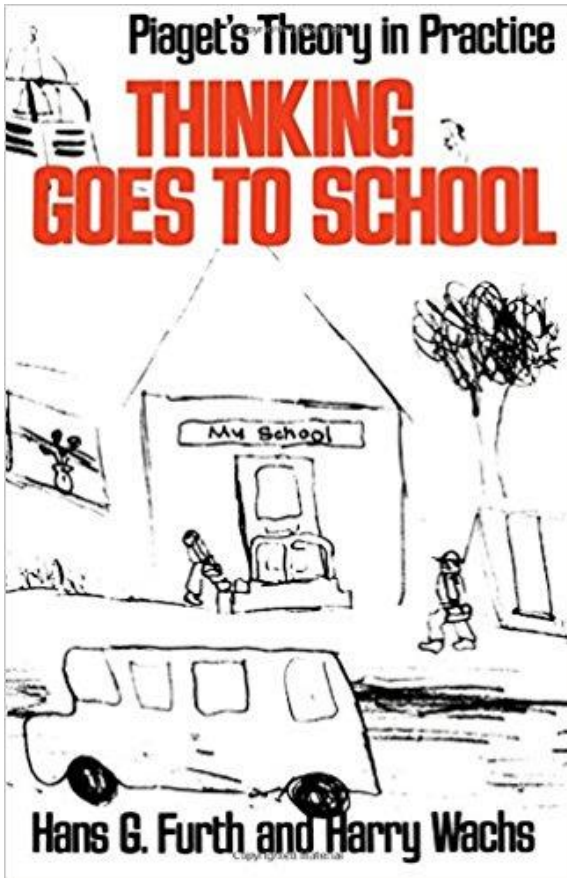
VC Therapy in Action-Super Hero Smack Down



K. One Year Later

“...Kyle is tracking moving objects better and is able to focus on and track a ball as it is thrown to him. Kyle moves his eyes more than he used to and doesn't turn his entire body to look to the side. Additionally, he has better eye contact. Kyle has begun reading in kindergarten and so far, so good”





Article ▶ Successful Optometric Vision Therapy with Patients on the Autistic Spectrum: Engaging Patients with Visual-Cognitive Therapy

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Harry Wachs, OD, Chevy Chase, Maryland

Mollie Dee, PsyD, Washington, DC

ABSTRACT

Approximately 1 in every 68 children is diagnosed with an autism spectrum disorder (ASD). It is one of the fastest growing disabilities in the United States, yet there is a shortage of optometrists who are able, and willing, to provide care for these patients. Visual-cognitive therapy (VCT) has been used for over 50 years to implement in-office vision therapy with challenging patients, including patients who have ASD. The following article presents the theory of VCT used with the DIR (Developmental, Individual differences, Relationship-based)/Floortime model to engage our patients with ASD. A brief discussion of visual-cognitive therapy and the DIR/Floortime model is presented along with examples of visual-cognitive therapy procedures.

Keywords: autism, Developmental delays, DIR (Developmental, Individual differences, Relationship-based), Floortime, Piaget, visual-cognitive therapy

Introduction

Vision is often synonymous with sight. Wachs and Furth argued that vision also involves using knowledge through visual experiences. They stated that effective and well-developed vision results in understanding what one sees and coordinating that knowledge with the body to conceptualize one's world.¹ The conceptual ability they described is closely tied to how well one understands a topic, problem, or

theories of development. Wachs' interpretation of Piaget's developmental theories emphasizes working with a child at his or her personal developmental level to develop in the following areas of thinking: Visually Guided Cognitive Movement (including reflex integration), Ocular Discrimination, Digital Discriminative Movement, Hand Thinking, Visual-Verbal Receptive and Expressive Language, Visual Thinking, Visual Logic, Visual-Auditory, Graphics (visual-motor), Representational Thinking, and Visual-Math.¹³

Azimi Green MD, Wachs H, Dee M. Successful optometric vision therapy with patients on the autistic spectrum: engaging patients with visualcognitive therapy. *Optom Vis Perf* 2014;2(5):235-9.

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- Occupational Therapists
- Speech Language Pathologists
- Creative Arts Therapists





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