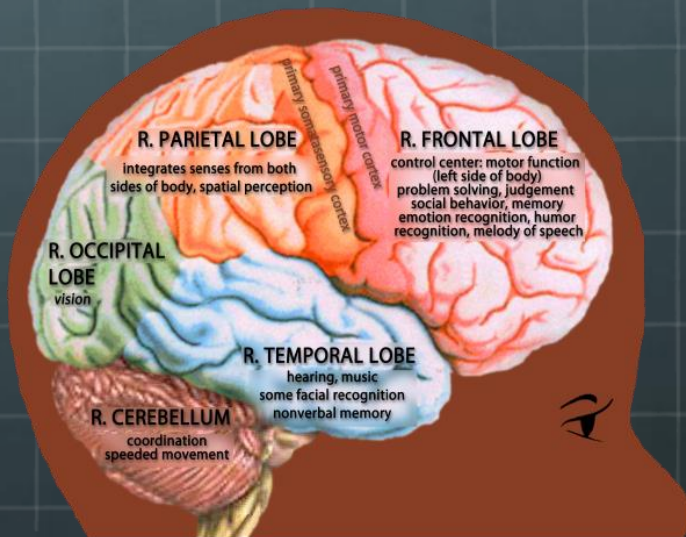


Therapy with children with neurodevelopmental difficulties and their families



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Overview



- 🌐 Intervention and Video example(s)
- 🌐 Neuropsychologically based treatment of children
 - 🌐 Theoretical approaches
 - 🌐 Specific interventions (beginning and end of presentation)
- 🌐 Psychologically based treatment
 - 🌐 Parent training
 - 🌐 Anxiety



Matthew

6 years, 1st grade Dx: Autism spectrum disorder,
Disruptive mood regulation disorder
Seizure disorder (controlled)

Medications include Trileptal,
Risperidol and Clonidine

Referred by OT and psychologist
because difficulties with visual
perception, which were thought to
exacerbate and extend tantrums



Matthew

OT:

Frustrated easily, lacked safety awareness,
He was reported to lose track of what he had seen and
be unable to locate it even when it was in front of him
(vision difficulties and seizure activity ruled out –
multiple times)

Could write his name –
poor letter formation
poor spatial placement



Matthew

Psychologist:

Inconsistent performance, uncertain comprehension

WISC-IV

Verbal Comprehension 1st %ile

Perceptual reasoning 14th %ile

Working memory 27th %ile

Processing speed 9th %ile

Highest subtests

Vocabulary 9th %ile

Matrix reasoning 50th %ile

Letter-Number 63rd %ile

Symbol Search 25th %ile



Matthew



9 sessions – 4 months
(Parent present)

Name game

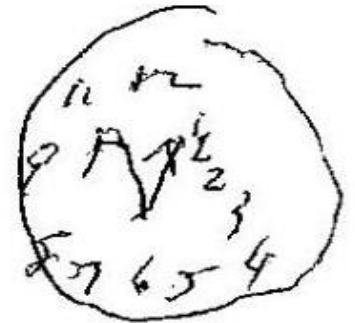
Good sitting

Stone game

Drawing

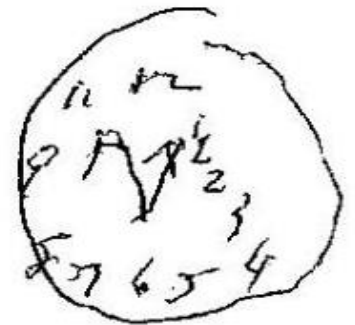
Applying the Boston Process Approach to Therapy

- 🌐 Developed by Edith Kaplan
 - 🌐 Called Boston Process Approach (1986)
- 🌐 Examines qualitative processes underlying cognitive performance



Applying the Boston Process Approach to Therapy

- Assumes similar performances can be achieved through multiple processes
- Close observation of behavior and hypothesis testing provide information to guide therapeutic intervention



Byron Rourke's Developmental Approach

- 🌐 Considers the impact of brain inefficiencies or damage on current functioning and then looks at development and how this biases and will continue to bias development
- 🌐 Most known for his formulation 'nonverbal learning disabilities' (NLD)



Byron Rourke's Developmental Approach

NLD: multiple etiologies

Inefficiency in nonverbal processing

Over-reliance on auditory processing

Bias shapes function

Amenable to treatment

(rehabilitation/habilitation/
accommodation)



Matthias: A child with Williams Syndrome

- Relative strength in language and extremely weak nonverbal processing
- Strongly focused on people



Matthias: A child with Williams Syndrome

- 🌐 Learning to write (video excerpt)
- 🌐 Difficulty with spatial perception interferes
 - 🌐 Can identify objects (ventral pathway)
 - 🌐 But has difficulty understanding the “where?” (dorsal pathway)



Plasticity and Homeostasis

**Age, Plasticity, and Homeostasis in
Childhood Brain Disorders**

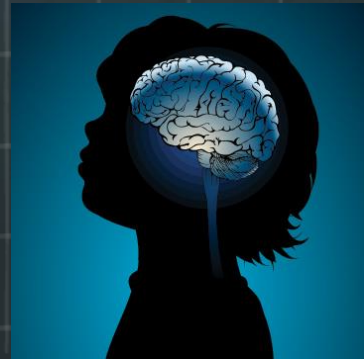
(Dennis et al, Neurosc Biobehav Rev. 2013)

‘Unbridled’ plasticity:

**fast to learn, difficulty retaining and
automating**

‘Unbridled’ homeostasis:

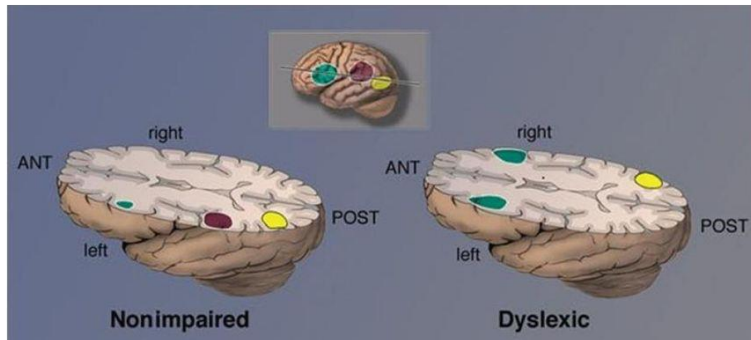
**fast response to established routines
slow to adapt to change**



Plasticity and Homeostasis

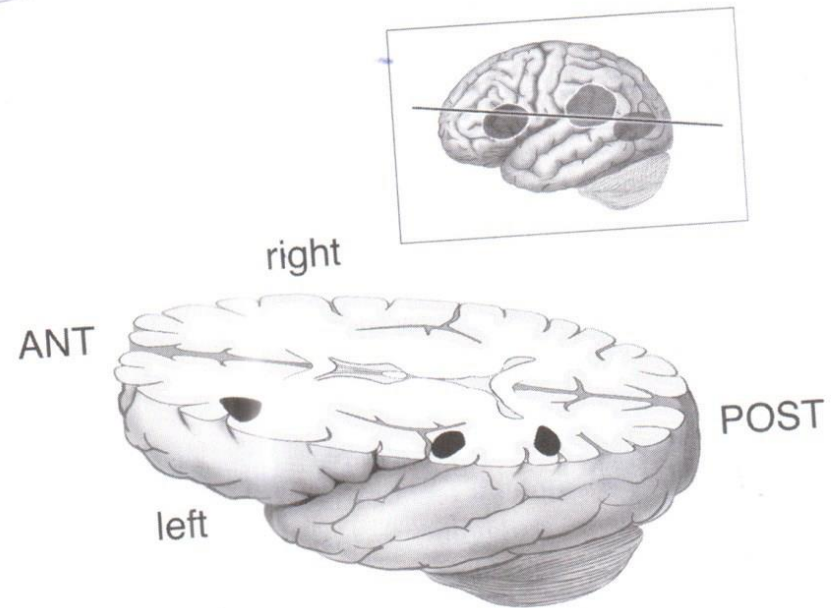
Overcoming Dyslexia (Shaywitz, 2003)

DYSLEXIC BRAIN ACTIVATION DURING READING



12

S&B Shaywitz, 2008



Plasticity and Homeostasis

Treatment can shift functioning (plasticity)
e.g., seen in intervention in reading disorders

BUT: homeostasis to maintain new organization
may not be as solid as we might wish

For example, I find that children
(and parents of children) with reading disorders
benefit from understanding that their
remediated functioning requires more
maintenance than typical readers



Claudia

- 🌐 Learning to read (video excerpt)
 - 🌐 Phonics: word families
- 🌐 Perseveration interferences

an

at

it

in



Complex Cases are the Norm

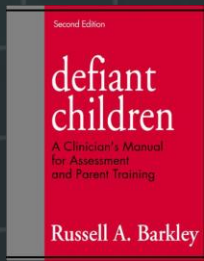
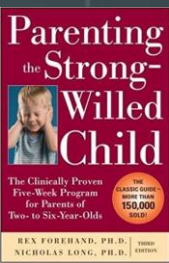
- Applying neuropsychological understanding to treatment
- Behavioral treatment for the child: building frustration tolerance, attention, effort, dealing with anxiety, etc.
- Parent training

Educations and Consultation Groups

- Education
 - Parent training
 - Anxiety disorders
- Consultation Group
 - Education
 - Case conferences
 - Collegiality

Research based Behavioral Parent Training

- 🌐 Helping the Noncompliant Child – McMahon and Forehand
- 🌐 Parent Management Training – Patterson
- 🌐 Parent Management Training – Kazdin
- 🌐 The Incredible Years – Webster Stratton
- 🌐 Triple P – Positive Parenting Program
- 🌐 Parent Child Interaction Therapy – Eyeberg
- 🌐 Defiant Children/Defiant Teens – Barkley



Research based Behavioral Parent Training

Typically 2-part programs with sequenced teaching of skills

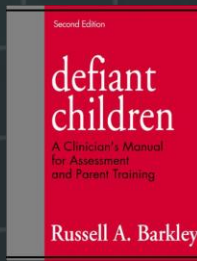
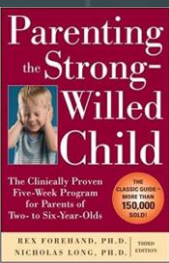
Assumptions:

Attention increases likelihood of a behavior re-occurring

Behavior is shaped through positive reinforcement




Part 1 – differential attention

Part 2 – instructions and consequences








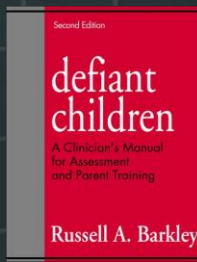
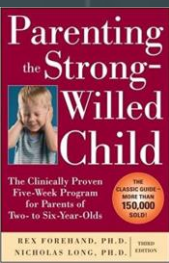
Research based Behavioral Parent Training

Differential Attention

-  1. Attending (child), noticing (adolescents)
-  2. Labeled verbal praise, rewarding
-  3. Ignoring (child only)

Instructions and consequences

-  1. Clear instructions
-  2. Warning – If/then statements
-  3. Consequences – time out only for children
-  4. Adolescent – SANE consequences
-  Small, nonAbusive, Not punishing to parents, effective





Anxiety and Courage



- Fear thou Not: Activity of Frontal and Temporal circuits in moments of real life courage
(Nili et al. Neuron 6/2010)
- Approach – increased frontal activation/decreased amygdala activation
- Avoidance – increased amygdala activation/ decreased frontal activation



Anxiety Treatment



- 🌐 Educate
- 🌐 Build list of feared things/activities/feared outcomes
- 🌐 Order list
- 🌐 Challenge items on list from easiest to most difficult with assessment of anxiety levels
 - 🌐 Re-order list as needed
- 🌐 Attend to and praise all steps

Kai ('I'm a Ninja')

- 🌐 6 yr. old kindergartener
- 🌐 Has lumbar spinal bifida, shunted hydrocephalus, is ambulatory with orthotics, requires bowel and bladder care
- 🌐 Referred for behavioral control by his neuropsychologist – hitting, outbursts, anxiety
- 🌐 ... and orthopedic surgeon – fear and anxiety disruptive to appointments, precludes planning/scheduling needed surgery

Kai ('I'm a Ninja')

- 🌐 Kai has above average language, average nonverbal skills, weak fine motor, slowed processing, and executive functioning weaknesses

Kai ('I'm a Ninja')

- 🌐 Home schedule was chaotic, medical needs take lots of time, bedtimes were often late
- 🌐 Professional parents, dad works full-time, mom occasionally, younger sibling
- 🌐 Parents have not used time out or other negative consequences for tantrums, hitting, etc. Dad feels this is harmful to children based on a parenting book he read

Kai ('I'm a Ninja')

- Education on parent training and outcomes
 - Began with 'special playtime' and differential attention – congruent with dad's beliefs
 - Moved onto instructions and consequences with hitting targeted first, this worked well and helped parents move onto other behavior targets

Kai ('I'm a Ninja')

- In session, targeted attention, self-control, waiting in the waiting room while his parents and I talked
- Moved onto treatment of medical anxiety
 - Began with list of feared medical items
 - Tackled with words, images, video, role play
 - Visit to lab
 - Self-initiated drawing of feared medical settings and procedures

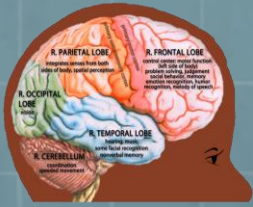
Kai ('I'm a Ninja')



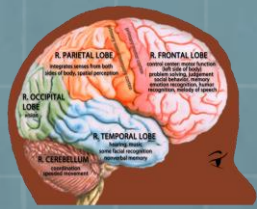
Kai ('I'm a Ninja')



Review



- 🌐 We have looked at the application of neuropsychology to intervention with a focus on using qualitative understanding of cognitive performance, knowledge of development, and consideration of homeostasis and plasticity to build and shape interventions
- 🌐 We have explored the adaptation and application of research based strategies for parent training and treatment of anxiety applied to this special population.



Sampler of Interventions

Attention

Perseveration

Meta-cognition

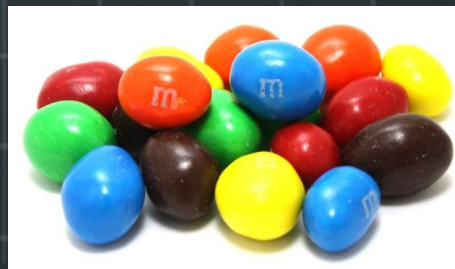
Spatial functioning

Language functioning

Name Game: Attention

🌐 Name Game – building predictable response to name

- 🌐 Instructed how to respond to name and challenged to do so as soon as he/she hears name: 5 - 10 min game
- 🌐 As soon as he/she responds, reward with enthusiasm, verbal praise and a piece of candy if helpful
- 🌐 Educate parent on need to keep it fun
- 🌐 When well established can shape to more difficult challenges and generalize



Good Sitting: Self-Control

● Good Sitting – building self-control

- Draw images to go with explanation
- Demonstrate and model
- Make practice fun (goal: 2 ½ minutes of success)
 - Reward with M&M or other treat for each 30 sec sustained Good Sitting
 - Timer resets for each violation (e.g., giggling, wiggling, blurting out, etc.)
 - Use Square Breathing if 3 – 4 resets are needed one right after another



Collin: Good Sitting

- 🌐 6-year-old: dad thought he had an attention deficit
- 🌐 Language difficulties explained problems
- 🌐 SLP referral
- 🌐 (Video excerpt)



Square Breathing: Self-Control

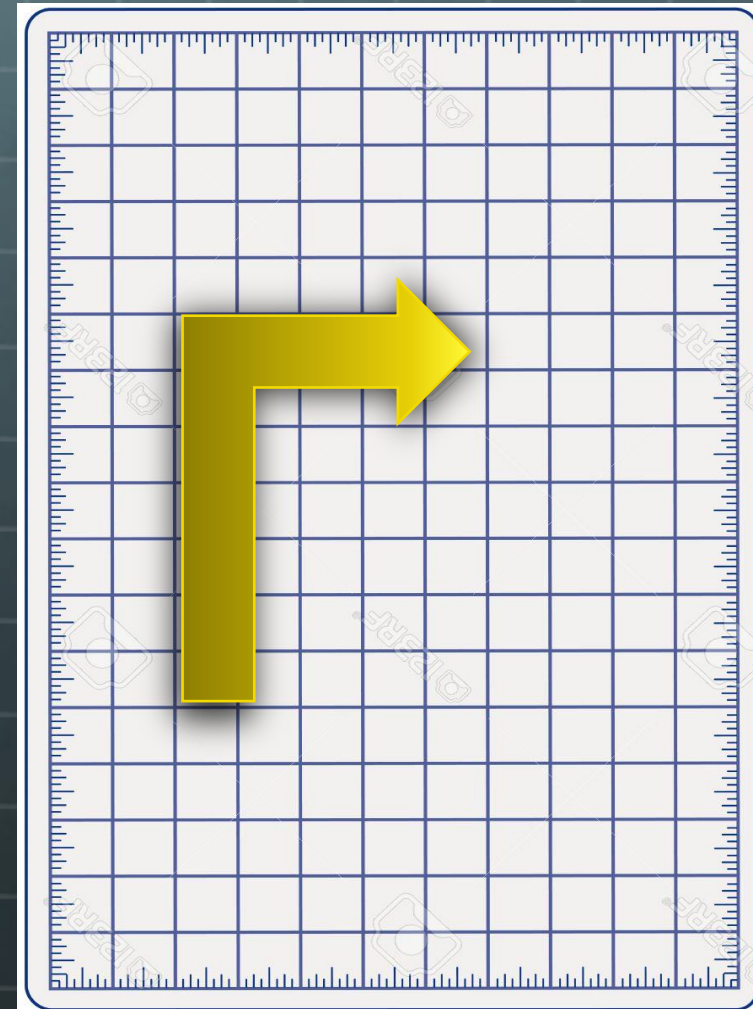
Breath in 2, 3

Hold 2, 3

Out 2, 3,

Wait 2, 3

Repeat



Freeze: Building Sustained Attention







Freeze – like a robot turned off midstream – when the child is inattentive and return to your normal self when the child is attending

Cumulative Attention Points

Cumulative Attention Points to build sustained attention

Cumulative Attention Points






5 min	1 point
10 min	3 points
15 min	5 points
20 min	9 points
25 min	14 points
30 min	20 points
35 min	28 points

-  Emphasize that these are grown-up attention points
-  Make a semi-geometric progression for earning points
-  Adjust how many points it takes to earn a prize to the client's needs
-  Have a nice prize box/drawer

Dice Game: Perseveration

Dice Game: Perseveration Challenge to build self-monitoring



-  Child is asked to name the number that comes up on a die as fast as they see it
-  Therapist also names number
-  Child wins if as fast or faster than therapist
-  Therapist wins if faster or child says or begins to say wrong number
-  Mistakes are analyzed for perseveration, impulsivity, perceptual difficulties– child learns to identify and inhibit

Stop Game: Inhibition

- 🌐 **Stop Game:** teaching automatic response to a 'stop' command
- 🌐 Child is asked to name to color lights on a stoplight and say which is most important
- 🌐 Often it's green
- 🌐 He/she draws a stoplight and we have a lot of fun playing with cars and having many crashes with only green lights



Stop Game: Inhibition

🌐 **Stop Game:** teaching automatic response to stop command

🌐 Introduce red light (and sometimes yellow) and work on stopping as soon as red-light is heard


🌐 Change it to a stop command and the child is instructed to stop and place hands at side

This is kept as a fun game in different situations until automatic and ready for generalization




Chi Squares: Meta-Cognition

 Chi Squares to build self-monitoring and metacognition

 Performance is analyzed by Chi Square Chart

 Add in fun for use


 Example 1: Knowing

 Example 2: Feeling/
Working hard

	Think you are right	Think you are wrong
You are right		
You are wrong		

	Good Attitude	Grumpy
You get what you need done		
You don't get what you need done		

Stone Game: Building Spatial Skills

 Stone Game – building visual tracking
– beginner level



Stone Game: Building Spatial Skills

- 🌐 Stone Game – building visual tracking – beginner level
- 🌐 Set a beginning spot and mark
- 🌐 Set a stone down where the child is to walk to
- 🌐 Have the child imagine walking there and then close his/her eyes and then stamp foot at arrival (mark with different colored stone)
- 🌐 When this is good for different distances move to 2 stones so that angulation is also required.



More Spatial Interventions

Patterns

Map reading – map making

Drawing

Silly Sequence Game: Building Language Skills

First, swing on the green swing
Second, swing on the trapeze bar over the ball pit
And third, drop into the ball pit,
And finally fourth, run over the orange mat and give your mom a hug








More Language Interventions

Visualizing/Verbalizing from Lindamood Bell

Word Shapes – Ark Institute of Learning

Tangent game

Applications

-  Increased awareness and attention to qualitative observation
-  Investigation of varied causes of dysfunction
-  Adapting and building your own interventions
-  Potential avenue for research
-  Potential addition to graduate level training