Translating Neuropsychology Into School Psychology Practice
Adapted NASP Model

Neuropsychological and Psychological Practices that Permeate All Aspects of Service Delivery

Direct and Indirect Services for Children, Families & Schools

Student Level Services

Systems Level Services

Neuropsychological and Psychological Interventions & Instructional Support to Develop Academic Skills

School-Wide Practices to Promote Neurodevelopmental Aspects of Learning

Preventive & Responsive Services to Promote Optimum Neurodevelopment

Family-School Collaboration Services to Promote Awareness and Support for Neurodevelopment

Neuropsychological and Psychologically-Informed Consultation & Collaboration

Neuropsychological and Psychologically-Informed Data-Based Decision Making & Accountability

Neuropsychological and Psychological Interventions & Mental Health Services to Develop Social & Life Skills

Neuropsychological and Psychological Interventions & Mental Health Services to Develop Social & Life Skills

Foundations of Service Delivery

Neuropsychological and Psychologically-Informed Cultural Competency

Neuropsychological and Psychological Research and Program Evaluation

Neuropsychological and Psychological Legal, Ethical, and Professional Practice
Addition of EF & Attention to School Psychological Assessment

School Psychology Comprehensive Assessment

Executive Functions and Attention

Neuropsychological Perspective

Brain diagram with labels: Frontal Cortex, Parietal Cortex, Supplementary Motor Cortex, ACCumbens Nucleus, Thalamus, Basal Ganglia, Cerebellum.

Networks: Fronto-cerebellar, Reward, Fronto-occipital, Executive function, Attentional.
The Neurodevelopmental Model of Evaluation and Service is a framework for the practice of single-case study and treatment in the schools.

It requires the translation of neuropsychological information to enhance sensitivity and specificity of the determination of disability, and to drive intervention that demonstrates positive outcomes in quality of life.
The Comprehensive Neurodevelopmental Evaluation

Block 3: Generative
- Creativity
- Mastery

Block 2: Integrative
- Fluency
- Basic Skills

Block 1: Sensory
- Integration
- Perception

11 yrs to adulthood
4 to 11 yrs
Birth to 4 yrs
The Comprehensive Neurodevelopmental Evaluation

Block 3: Generative
- Creativity
- Mastery

Block 2: Integrative
- Fluency
- Basic Skills

Block 1: Sensory
- Integration
- Perception

Executive Functions
Integration to Fluency
Visual, Auditory, Kinesthetic, Attention
The Comprehensive Functional Neurodevelopmental Evaluation

Block 3: Generative
- Creativity
- Mastery

Block 2: Integrative
- Fluency
- Basic Skills

Block 1: Sensory
- Integration
- Perception

Reading, Writing, Arithmetic, Social Competence & Innovation
Basic academic skills; Beginning school; Playing
Attention, playing Sensory-Motor, Bonding
## Areas of Evaluation

<table>
<thead>
<tr>
<th>Cognitive processes</th>
<th>Cognitive product</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Auditory processes</td>
<td>• Reading</td>
</tr>
<tr>
<td>• Visual processes</td>
<td>• Math</td>
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<td>• Motor/kinesthetic processes</td>
<td>• Written Expression</td>
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<tr>
<td>• Language</td>
<td>• Social relationships</td>
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<tr>
<td>• Attention/Executive Functions</td>
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<td>• Memory</td>
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<td>• Social/emotional</td>
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</tbody>
</table>
## Cognitive Processes

<table>
<thead>
<tr>
<th>Auditory</th>
<th>Visual</th>
<th>Sensory Motor</th>
<th>Language</th>
<th>Executive Attention</th>
<th>Memory</th>
<th>Social emotional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listening comprehension - inferential</td>
<td>Visual problem-solving</td>
<td>Smooth, complex, fine and gross motor</td>
<td>Oral expression of abstract reasoning</td>
<td>Insight; Complex problem-solving; Planning; Metacognition; Efficiency</td>
<td>Long-term storage &amp; retrieval; Association</td>
<td>Tolerance of ambiguity; Conflict resolution; Humor; Social skills</td>
</tr>
<tr>
<td>Listening comprehension - concrete; Auditory perceptual skills</td>
<td>Visual or spatial integration; Visual perception skills</td>
<td>Visual-motor integration; handwriting fluency; Motor planning; Left/Right</td>
<td>Verbal and nonverbal communication; Prosody</td>
<td>Goal selection; Motivation; Basic self-regulation; Sustained attention; inner speech; Pretend play</td>
<td>Categorical fluency; Semantic fluency; Memory strategies; Working memory-executive</td>
<td>Theory of Mind; Emotional regulation; Perspective-taking</td>
</tr>
<tr>
<td>Auditory perception discrimination; Phonological loop</td>
<td>Visual perception discrimination; Visual sketch-pad</td>
<td>Tactile; Proprioception; Oral-motor</td>
<td>Articulation; Receptive understanding; Nonverbal gestures; Pragmatic need</td>
<td>Inhibition; Attention; Salience; Orienting; Alerting</td>
<td>Prototypic memory; Procedural memory; Phonological loop; Visual sketch-pad STM</td>
<td>Prosody; Affect identification self &amp; others; Face recognition;</td>
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</tbody>
</table>

### Cognitive Product

<table>
<thead>
<tr>
<th>Reading</th>
<th>Math</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Comp Inferential: Reading Comp concrete</td>
<td>Math problem-solving: Math formulae</td>
<td>Written express (creative); Written express (concrete) Factual writing</td>
</tr>
<tr>
<td>Fluency with prosody; Fluency-word calling Word attack &amp; decoding</td>
<td>Math facts Fluency; Math facts Math operation</td>
<td>Spelling fluency; Grammar fluency; Spelling vocab</td>
</tr>
<tr>
<td>Phono- logical awareness; Alphabetic principle; Orthographic knowledge: Literacy exposure</td>
<td>Number &amp; fact recognition; Number sense; Literacy exposure</td>
<td>Spelling basic words; Basic grammar; Handwriting</td>
</tr>
<tr>
<td>Cognitive Processes</td>
<td>Cognitive Product</td>
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<td>---------------------</td>
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<tr>
<td><strong>Block 1</strong>&lt;br&gt;Sensory&lt;br&gt;Auditory perception discrimination; Phonological loop&lt;br&gt;Visual perception discrimination; Visual sketch-pad&lt;br&gt;Tactile; Proprioception Oral-motor&lt;br&gt;Articulation&lt;br&gt;Receptive understanding; Nonverbal gestures; Pragmatic need&lt;br&gt;Inhibition&lt;br&gt;Attention&lt;br&gt;Salience&lt;br&gt;Orienting&lt;br&gt;Alerting</td>
<td><strong>Reading</strong>&lt;br&gt;Prosody; Affect identification self &amp; others; Face recognition; &lt;br&gt;Phonological awareness; Alphabetic principle; Orthographic knowledge: Literacy exposure&lt;br&gt;Number &amp; fact recognition; Number sense; Literacy exposure&lt;br&gt;Spelling basic words; Basic grammar; Handwriting</td>
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<tr>
<td><strong>Block 2</strong>&lt;br&gt;Integrative&lt;br&gt;Auditory perception skills&lt;br&gt;Visual or spatial integration; Visual perception skills&lt;br&gt;Visual-motor integration; handwriting fluency; Motor planning; Left/Right&lt;br&gt;Verbal and nonverbal communication; Prosody&lt;br&gt;Goal selection; Motivation; Basic self-regulation; Sustained attention; Inner speech; Pretend play&lt;br&gt;Categorical fluency; Semantic fluency; Memory strategies; Working memory-executive&lt;br&gt;Theory of Mind; Emotional regulation; Perspective-taking&lt;br&gt;Fluency with prosody; Fluency-word calling Word attack &amp; decoding&lt;br&gt;Math facts&lt;br&gt;Fluency; Grammar fluency; Spelling fluency;</td>
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<td><strong>Math</strong>&lt;br&gt;Math facts&lt;br&gt;Math operation&lt;br&gt;Spelling vocabulary;</td>
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**Neurodevelopmental Model of Assessment & Intervention**<br>Elaine Fletcher-Janzen
Interventions
plasticity definition

• Pronunciation: /pla-stis-ət-ē/
Function: n
pl-ties; 1: the quality or state of being plastic especially: capacity for being molded or altered
2: the ability to retain a shape attained by pressure deformation
3: the capacity of organisms with the same genotype to vary in developmental pattern, in phenotype, or in behavior according to varying environmental conditions
4: the capacity for continuous alteration of the neural pathways and synapses of the living brain and nervous system in response to experience or injury that involves the formation of new pathways and synapses and the elimination or modification of existing ones

• Merriam-Webster’s Medical Dictionary, © 2007 Merriam-Webster, Inc.
Translational Neuropsychology: From Plasticity to Intervention

Growing body of research...

• Sally & Bennett Shaywitz
• George McCloskey
• Michael Boivin
• Michael Posner
• Bruce Perry
• Jack Naglieri
• Brad Hale
• Cecil Reynolds
• Margaret Semrud-Clikeman
• Jack Fletcher
<table>
<thead>
<tr>
<th>Writing Processes</th>
<th>Methods of Assessment</th>
<th>Methods of Intervention</th>
</tr>
</thead>
</table>
| **Block 3**  
**Generative** | Written expression: critical  
Written expression: creative  
Written expression: concrete | Written expression subtests | **Top down**  
Visual mapping of ideas; research skills; incubation skills; patience |
| **Block 2**  
**Integrative** | Spelling fluency  
Grammar fluency  
Vocabulary  
Handwriting/typing fluency | Spelling achievement tests: error analyses  
Written expression subtests: grammar  
Vocabulary subtests | **Bottom up**  
Parsimony; basic mapping; vocab software; visual practice |
| **Block 1**  
**Sensory** | Grammar rules  
Spelling generative/rule bound  
Spelling basic  
Copying written material  
Literacy appreciation—need to write | Basic written expression and spelling subtests  
Pencil grip  
Copying skills  
Coloring skills | **Depends on age and severity of deficit**  
Distinguish between literacy and motor |
Interventions

• Basic on research about approaches that are found to be evidence-based with groups AND…

• Tailored or individualized to the case at hand

• Sensitive to cognitive fatigue/reserve

• Ongoing

• Monitored

• Adjusted according to progress
Review of Presentation

• Introduction

• Basic brain organization
  • 1. This session will help participants understand basic functional neuroanatomy of brain processes and products.

• Introduction of a neurodevelopmental approach to assessment
  • 2. This session will help participants understand brain processes and products from a developmental perspective

• Translating neuropsychology into school psychology practice
  • 3. This session will help participants understand the relationship between brain processes and academic products.