## Nonverbal Learning Disabilities

**Classroom Challenges & Instructional Strategies**

Ellen Engstrom, M.A.
Groves Academy

### Agenda

- NLD overview
  - Subtype Model of NLD
  - Strengths & challenges for students with NLD
- The middle school student with NLD
- Three affected areas:
  - Social Skills, Executive Functioning, Visual-Spatial
- Academic areas affected
- Best practices for instruction and the school setting

### Nonverbal Learning Disability

- Impaired processing of nonverbal cues (facial, vocal, body)
- Impaired visual-spatial processing
- Difficulty seeing part-to-whole relationships
- Thinks verbally, not pictorially/spatially
- Impaired executive functions/active working memory
- Bottom-up processing/focusing on details
- Impaired ability to deal with novel situations

---

©2006 Landmark College
Groves Academy Outreach 2013
The Brain & NLD

Left Hemisphere
- Logical
- Mathematical
- Rational/Reasoning
- Verbal/Language
- Analytical
- Precise and Accurate
- Objective
- "Sees" Parts
- Planning
- Routine/Structure
- Sequencing

Right Hemisphere
- Artistic/Creative
- Emotion & Humor
- Intuitive
- Simultaneous
- Visual (Spatial Imagery)
- Insightful
- Holistic
- Subjective
- "Sees" Wholes
- Athletic Ability
- Works Well with Questions
- Interpretation of Communication

Subtype Model of NVLD

Core Visual Spatial and Executive

Executive Functions

Executive functions (work together in various combinations)

- Activation: Organizing, prioritizing, and activating to work
- Focus: Focusing, sustaining, and shifting attention to tasks
- Effort: Regulating alertness, sustaining effort, and processing speed
- Emotion: Managing frustration and modulating emotions
- Memory: Utilizing working memory and accessing recall
- Action: Monitoring and self-regulating action

Executive Functioning

- Organizing, prioritizing
- Focus and attention
- Sustaining effort
- Regulating emotions – managing frustration
- Memory and recall
- Self-regulation

Executive Function Challenges

- Difficulty working independently
- Difficulty solving problems, organizing, planning
- Difficulty maintaining concentration and inhibiting impulsive behaviors
- Deficits in sustained attention and visual memory
- Appears forgetful and disorganized

Visual Spatial

Is she happy?
### Visual - Spatial

- Visual details
- Visual perception
- Visual memory
- Spatial orientation

### Visual-Spatial Processing

<table>
<thead>
<tr>
<th>2</th>
<th>7</th>
<th>1</th>
<th>2</th>
<th>6</th>
<th>2</th>
<th>5</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4</td>
<td>+</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3 + 5, or 33 x 3, or 5 vs. 3

5 x 207 = approx. 1,000 or approx. 10,000

### What would you call this?
Social Skills

- Nonverbal communication
- Adjusting to novel situations
- Poor perspective-taking
- Limited problem-solving
- Sensitive to rejection

Social Skills

- Perceptual cues (traffic lights)
- Facial expressions
- Literal translations
- Concrete

Nonverbal Information Processing

<table>
<thead>
<tr>
<th>Mood</th>
<th>Emotion 1</th>
<th>Emotion 2</th>
<th>Emotion 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happiness</td>
<td>Desire</td>
<td>Surprise</td>
<td></td>
</tr>
<tr>
<td>Jealousy</td>
<td>Disgust</td>
<td>Pride</td>
<td></td>
</tr>
<tr>
<td>Sadness</td>
<td>Love</td>
<td>Fear</td>
<td></td>
</tr>
<tr>
<td>Disappointment</td>
<td>Anger</td>
<td>Relief</td>
<td></td>
</tr>
<tr>
<td>Excitement</td>
<td>Concern</td>
<td>Sympathy</td>
<td></td>
</tr>
<tr>
<td>Frustration</td>
<td>Hate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Strengths for Students

- Rote memory skills
- Auditory attention & short-term memory
- Verbal expression
- Factual Knowledge
- Logical, sequential thinker

Challenges for Students

- Nonverbal, nonlinguistic information
- Perceiving visual spatial relationships (part-to-whole)
- Mathematical reasoning
- Big picture thinking
- Poor organization skills

Challenges for Students

- Excessively verbal; use words rigidly
- Social interaction
- Cognitive flexibility
- Organization of writing
- Coordination and balance
- Fine motor skills
Middle School Student (11-14)

- Often excluded, teased, and persecuted at school
- Very literal and concrete; misunderstood by teachers and peers
- Difficulty meeting age-appropriate behavioral expectations
- Problems with work and study habits; may be misattributed to "motivational" issues
- Difficulty using a locker, can't find his way around the school, is often lost or tardy

Middle School Student (11-14)

- Pressure to conform and adolescent hormonal changes can result in secondary emotional problems:
  - Depression
  - Anxiety
- Difficulty with abstract concepts, especially if related by means of analogies, idioms, multiple meanings or figurative speech
- Grades drop in middle school compared to elementary school

NLD & Asperger's Syndrome

<table>
<thead>
<tr>
<th>NLD</th>
<th>Asperger's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor visual-spatial processing</td>
<td>Early language delays</td>
</tr>
<tr>
<td>Desperate for friends</td>
<td>Cognitive delays</td>
</tr>
<tr>
<td>Empathetic; caring</td>
<td>Indifferent to peers</td>
</tr>
<tr>
<td>Displays emotion</td>
<td>Indifferent to feelings of others</td>
</tr>
<tr>
<td></td>
<td>Narrow, exclusive, abnormal interests</td>
</tr>
<tr>
<td></td>
<td>Idiosyncratic use of words</td>
</tr>
</tbody>
</table>
Emotional Well-Being

- Depression
- Withdrawal
- Panic attacks
- Anxiety
- Suicide risk

Nonverbal Learning Disability Behaviors and Misinterpretations

- Talks loudly, excessively/ interrupts
- Stands too close
- Laughs inappropriately or not at all
- Appears stoic or anxious
- Misinterprets readings & sarcasm
- Clumsy or jumbled writing on unlined surfaces
- Struggles with building models, drawing diagrams, visual-spatial tasks

- Rude or disrespectful
- Gullible / naive
- Messy
- Nervous
- Inattentive
- Careless
- Wise “guy”
- Overly serious

NLD & AD/HD

<table>
<thead>
<tr>
<th>NLD</th>
<th>AD/HD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoids new situations</td>
<td>Seeks novel input</td>
</tr>
<tr>
<td>Hypoactive</td>
<td>Hyperactive</td>
</tr>
<tr>
<td>Can’t anticipate consequences</td>
<td>Doesn’t consider consequences</td>
</tr>
<tr>
<td>Rule-bound</td>
<td>Resists rules</td>
</tr>
<tr>
<td>Slow processor &amp; producer</td>
<td>Rushes through work</td>
</tr>
<tr>
<td>Benefits from verbal explanations</td>
<td>Responds best to minimal verbal input</td>
</tr>
<tr>
<td>Inattentive to visual details</td>
<td>Inattentive to all details</td>
</tr>
</tbody>
</table>
Organizing Time/Memory

- Daily agenda
- Homework board
- Master notebook
- Electronic planners
- Breaks during lesson
- Assignments in chunks
- Calendar
- Advanced organizers
- Regular monitoring

Academics

Challenge Areas
Beneficial Instructional Practices

- Clear and concise instruction
- Instruction broken down and expressed verbally in simple steps
- Assignments broken down into steps
- Practice new concepts in a controlled setting with guidance and encouragement
- Constructive/positive feedback
- Comprehension strategies taught explicitly

Sensory-Motor

- Graphomotor and pencil grip problems (early on)
- Difficulty remembering the shapes of letters (visual memory) and using the correct sequence of strokes to form letters (visual-sequential memory)
- Difficulty with concept of visual form constancy; the ability to perceive that an object possesses unchanging properties, such as specific shape, position, and size

Most Challenging

<table>
<thead>
<tr>
<th>Writing</th>
<th>Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big picture thinking</td>
<td>Generalization</td>
</tr>
<tr>
<td>Organization of ideas</td>
<td>Visual-spatial processing</td>
</tr>
<tr>
<td>Self-monitoring</td>
<td>Visual-tactile manipulatives</td>
</tr>
<tr>
<td>Fine motor</td>
<td>Graphomotor skills</td>
</tr>
</tbody>
</table>
Effects on Writing

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big picture thinking</td>
<td>Parts to whole</td>
</tr>
<tr>
<td>Organization of ideas</td>
<td>Writing strategies, tools, and templates</td>
</tr>
<tr>
<td>Self-monitoring</td>
<td>Break down into steps</td>
</tr>
<tr>
<td>Fine motor</td>
<td>Use of computer</td>
</tr>
</tbody>
</table>

General Writing Strategies

- Allow extra time for written assignments
- Teach a strategic writing process
- Break down all written assignments into component parts
- Allow use of word processor or computer for lengthy written assignments in class

Effects on Math

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generalizations</td>
<td>Step-by-step, structured, sequential approach</td>
</tr>
<tr>
<td>Visual-spatial processing</td>
<td>Verbal mediation and description</td>
</tr>
<tr>
<td>Visual-tactile manipulatives</td>
<td>Reduce use of manipulatives</td>
</tr>
<tr>
<td>Graphomotor skills</td>
<td>Reduce manipulatives, use computer programs</td>
</tr>
</tbody>
</table>
General Math Strategies

- Ask students for feedback, “Does this help you?” (metacognition)
- Math roadmaps for problem-solving
- Re-check problems
- Text with a lot of color and visuals can be overwhelming

General Math Strategies (cont’d)

- Leave out irrelevant information in word problems
- Provide additional time for tests

General Classroom Strategies

- Timed assignments produce stress
- Bring closure before moving on
- Previewing and supplemental aids (outlines, study guides, audiocassettes) help
- Monitor organizational skills (assignment notebook)
### General Classroom Strategies

- Don’t isolate student; he/she learns through discussion
- Communicate and collaborate daily
- Minimize the number of adults working with the student

---

### Direct Instruction & Guided Practice

- Be clear and direct addressing difficulties
- The more novel or complex the more difficult the task
- Rely on the student’s verbal and analytical strengths
- Use words to describe and analyze a scene or situation (model verbal mediation of nonverbal info)

---

### Direct Instruction & Guided Practice

- Provide specific sequenced instructions, teaching the learner to verbally self-direct
- Encourage multisensory integration (read, see, hear it, touch it, say it, write it, do it) receptively and expressively
- Teach in a sequential, step-by-step manner
- Collaborate with the learner in discussing areas of need and awareness to improve
## School Settings

- Classes should be near each other
- Classes should occur in as few classrooms as possible
- Small, structured classes
- Environment should be free of distractions
- Environment is safe, tolerant, and consistent
- Environment has no tolerance for bullying
- School provides supervised, social experiences