Nonverbal Learning Disabilities

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Visual Communication

Problem
Example:
- ball flying around
- people running to and fro
- nobody knows what to do next
- men stand in line in order to hold long sticks
Laura doesn't like school because the other children don't want to socialize with her. She doesn't enjoy lunch anymore because she has no one to sit with, and now that she's going on 9, her academic work is not as good as it used to be. She has trouble with fractions and reading comprehension.
Laura's teacher has tried to talk with Laura, but Laura's response is a monologue of details with no point or purpose. She tries to help the girl with reading, but although Laura understands the words, she doesn't seem to comprehend the meaning of what she's read. Problems like these are common for children with nonverbal learning disability (NLD), who often experience social rejection as well as academic difficulty because of the symptoms of their disability.
People with NLD have difficulty processing nonverbal, nonlinguistic information, yet they may be very good at processing verbal information. They often fail to monitor the reactions of a listener. Frequently, they are excessively verbal and expressive. They depend on verbal input, verbal mediation, and verbal self-direction in order to function. They may talk a great deal, yet use words in a narrow, rigid way. Other behaviors affecting communication and social interactions include interrupting people, perhaps by speaking out of turn or by moving back and forth between people engaged in conversation, standing too close, or touching too much. Consequently, other people may choose not to interact with them, may avoid them, or may even ostracize them.
Individuals of all ages may exhibit characteristics of NLD. The reactions of others tend to leave them feeling isolated, lonely, and sad. They usually want to learn appropriate social behaviors, and they generally respond positively to instruction that leads to improved social behavior. This digest provides an overview of NLD and principles for designing and implementing instructional interventions to address its effects.

The syndrome of Nonverbal Learning Disabilities (NLD) is a subtype of learning disabilities whose neuropsychological assets and deficits have predictable academic and psychosocial outcomes (Rourke, 1995).

Nonverbal learning disabilities (NLD) affect organization, motor skills, visual-spatial perception, nonverbal communication, and often mathematics. Nonverbal Learning Disabilities are very closely related to Asperger Syndrome, Hyperlexia, and Semantic-Pragmatic Disorder.

http://www.autistics.org/access/information/ld/nld.html
Etiology

- deficits in subcortical white matter
- deficits in right cerebral hemisphere systems
Evidence of Neurological Disorder

- brain scans = mild abnormalities of right hemisphere
- head injury
- early trauma
Principal Clinical Manifestations (Rourke)

- Bilateral tactile-perceptual deficits
  - usually more on left side of body
- Bilateral psychomotor coordination deficits
  - often more marked on left side
- Deficiencies in visual-spatial-organizational abilities
Principal Clinical Manifestations (cont.)

- marked deficits in the areas of
  - nonverbal problem solving
  - concept formation
  - hypothesis testing
  - capacity to benefit from positive and negative informational feedback in novel or otherwise complex situations including: cause-effect relationships and appreciation of incongruities
Principal Clinical Manifestations (cont.)

- Very well-developed rote verbal capacities
  - includes extremely well-developed rote verbal-memory skills
- Extreme difficulty in adapting to novel and otherwise complex situations
  - over-reliance on prosaic, rote (and inappropriate) behaviors
Principal Clinical Manifestations (cont.)

- Relative deficiencies in mechanical arithmetic as compared to proficiencies in reading (word recognition) and spelling
- Much verbosity of a repetitive, straightforward rote nature.
  - Content disorders of language
    » poor psycholinguistic pragmatics
    » cocktail party speech
  - misspelling - phonetically accurate
  - little or no speech prosody
Principal Clinical Manifestations (cont.)

- Reliance on language as principal means for social relating, information gathering, and relief from anxiety
- Significant deficits in social perception, social judgment, and social interaction skills
- Marked tendency toward social withdrawal and social isolation as age increases
  - at risk for “internalized” forms of pathology
Prevalence

- less frequent than language-based disorders
- 1 of 1000
- 1-10% of the individuals with a learning disability would be found to have NVLD.
- About 0.1 to 1% of the general population.
- 1:1 sex ratio
Deficits

- motoric
- visual-spatial-organizational
- social
Deficits - Motoric

- Can have poor gross and fine motor coordination
- Severe balance problems
- Graphomotor skill problems
- Problems with spatial perception.
Deficits -
Visual/Spatial/Organizational

- lack of body image
- poor visual recall - does not form visual images and therefore cannot revisualize something seen before (has to write it down)
- faulty spatial perceptions
- difficulty with spatial relations
- focuses on the details and often fails to grasp the whole picture.
- “Right Hemisphere Learning Disorders”
Social Characteristics

Difficulties:

- social behavior
- common sense
- judging mood/attitude
- reading body language
Deficits - Social

- lack of comprehension of nonverbal communication
- difficulty in adjusting to transitions and novel situations
- problems in social judgment and social interaction
Adaptive Behavior Characteristics

Independent activities (store)
- Hazards
- Nonverbal routines
- Games

May develop an over-dependence on adults, most likely parents
Behavioral Characteristics

- “I shouldn’t have to tell you this!”
  - You do have to tell them (everything)
- “You talk too much.”
  - child relies on language as principal means of gathering information
  - relief from anxiety
Behavioral Characteristics

- child may appear confused
  - high intelligence
  - high scores on receptive and expressive language measures

- child unable to “look and learn”
  - does not perceive subtle environmental cues
    » when something has gone far enough
    » idea of personal space
    » facial expressions and other non-verbals
Cognitive Characteristics

- Cognitive or Reasoning
  - verbal > performance IQ
- Function of objects
- Poor higher level visual reasoning
Educational Characteristics

- May be an early reader, but there is generally difficulty with comprehension in upper elementary.
- Trouble generalizing information
- Excellent attention to detail
- Problems with Math and Science due to problems with visualization and abstract reasoning

(Thompson)
Math Deficits

- Time
- Space
- Alignment of numbers
- Copying problems
- Completing calculations
- Interpretation of math signs
- Angles
- Directionality (Left-right)
- Compass orientation
- Map reading
- Fine motor deficits can affect math skills; manipulating a pencil, and forming numbers
Informal Math Assessment

Difficulty with estimations
- time
- distance
- size
- number
- volume
- age
- 3d to 2d
Problems

- Often go unrecognized and unaided
  - discrepancy criteria
- Few resources
- Misunderstood - emotional/behavior problems
Intervention Possibilities?
Assets:

- early speech and vocabulary development
- remarkable rote memory skills
- attention to detail
- early reading,
- excellent spelling
- strong auditory retention
Positive characteristics of NVLD

- Early speech development
- Early reading and spelling
- Excellent vocabulary
- Great auditory memory
Compensation Instruction

- Compensations-accommodations
  - Verbalizations (simultaneous)
  - Encourage questions
Social Skills Training

Direct Instruction

Task analysis of nonverbal

- voice tone
- facial expression
- gestures
- charades
- sequences of pictures
- film strips
- movies
  - (Rourke 1989)
Interventions

- Mentoring
  - Organizational Skills Coach
- Occupational and Physical Therapy

(NLDA)
Prognosis

- Predisposed to develop internalizing pathology
- Unrealistic demands by parents and teachers may result in ongoing emotional problems
- Punished and picked on for circumstances that cannot be helped
- Problems less apparent at 7 or 8 than 10-14 and become worse as adulthood approaches
Compensations (Sue Thompson, 1996)

Modifications- The Academic Environment
(Foss, 2002)

- Ensure that all the student's teachers know that the student has NLD and understand its implications.
- * Establish performance expectations based on observation and knowledge of what the student is able to complete or produce, given the nature of the tasks and the time available.
- Provide structure and directions about priorities for completing multiple tasks.
- Arrange with other teachers to stagger the demands for products (papers, projects, tests, etc.), so that they are not all due at the same time.
Modifications to Facilitate Socialization

(Foss, 2002)

- Be sensitive to situations that have high potential for the student to behave inappropriately and intervene to avoid behavior that might lead to criticism, teasing, or social ostracism.
- Engage the student in a collaboration in which the teacher or parent signals when the student is making a social error and the student agrees to immediately stop the behavior.
- Arrange structured social activities for young children (through elementary school); coach the child in how to participate; and signal the child discreetly if he/she behaves in a manner that turns others away.
Interventions (Foss, 2002)

Students with NLD generally respond to direct instruction and guided practice. Perception of spatial relationships, ability to copy and draw geometric forms and designs, handwriting, reading comprehension, mathematics concepts and skills, and social perception and communication skills can be improved by explicit instruction.
Interventions (Foss, 2002)

- Underlying principles of direct instruction:
  - Be clear and direct in addressing the difficulty.
  - Gain a commitment from the learner to collaborate to improve the weakness.
  - Begin the work with what is most familiar and simple - the more novel or complex, the more difficult the task.
  - Rely heavily on the student's verbal and analytic strengths.
Interventions (Foss, 2002)

- Model verbal mediation of nonverbal information while teaching the learner how to use this strength. For example, use words to describe and analyze a scene or situation.
- Provide specific sequenced verbal instructions, teaching the learner to verbally self-direct and eventually to internalize this process.
- Provide instruction to directly associate and integrate verbal labels and description with concrete objects, actions, and experiences.
Interventions (Foss, 2002)

- Encourage the student to use multisensory integration, both receptively and expressively (read it, see it, hear it, touch it, say it, write it, do it).
- Teach in a sequential, step-by-step fashion.
- Identify opportunities to generalize newly learned skills to other situations and to practice in those situations.
References