Learning Disabilities

PSY 560 Intellectual Assessment
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• 12% of children aged 5-17 have difficulties performing one or more everyday activity

• Diverse Group

• Some Common Characteristics
  – Disorder of attention
  – Poor motor abilities
  – Perceptual and information processing problems

• Problems with cognitive strategies for learning
  – Oral language difficulties
  – Reading difficulties
  – Written language difficulties
  – Mathematics difficulties
  – Inappropriate social behavior

• More boys than girls
  – Gender differences
  – Why are there gender differences?
Cross-Cultural Nature of LD

- LDs are universal
  - Not just in the U.S.
- Children who are culturally diverse in the U.S. can also have learning disability
  - Though it can get tricky to diagnose

Definitions of Learning Disabilities

- Federal Definition
  - From IDEA
  - Disorder in one or more of the basic psychological processes
    - Difficulty in learning
      - Specifically speaking, listening, writing, reading, and mathematics
    - Not due to other causes
      - Visual or hearing problems
      - Motor handicaps
      - Mental retardation

- Emotional disturbance
- Environmental disadvantage
- Cultural disadvantage
  - Severe discrepancy exists between the student’s apparent ability and actual achievement

- Interagency Committee on Learning Disabilities
  - Can have difficulties in listening, speaking, reading, writing, reasoning, mathematics, or social skills
Definitions of Learning Disabilities

- Can occur concomitantly with other conditions
- Intrinsic to the individual
- Caused by CNS dysfunction
  - Impairment in brain function
  - Organic
- National Joint Committee on Learning Disabilities
  - Heterogeneous group of disorders
  - Problem is intrinsic

Definitions of Learning Disabilities

- CNS dysfunction
- Can occur with other disorders
- Kentucky State Definition
  - a permanent disorder which affects the manner in which individuals with normal or often above average intelligence acquire, retain, and express information

Definitions of Learning Disabilities

- Discrepancy = a difference > 14 points between global intelligence and measured achievement
Definitions of Learning Disabilities

– The discrepancy cannot be because of any of the following:
  • Visual, hearing, or motor impairment
  • Mental retardation
  • Emotional disturbance
  • Environmental, cultural, or economic disadvantage

Definitions of Learning Disabilities

• Common Elements of the definitions
  – CNS dysfunction
  – Uneven growth pattern and psychological processing differences
  – Difficulty in academic and learning tasks
  – Discrepancy between potential and achievement
  – Exclusion of other causes

Prevalence of LDs

• Ranges from 1% to 30%
  – Approximately 5% of all school-age children have been diagnosed as having a LD
• Number increased over the years
  – More awareness
  – Improvement in procedures used to identify
  – Social acceptance
  – Cutbacks in other programs and lack of educational alternatives
  – Court orders
Assessment of LDs

- State of KY
  - Evaluation to include the following:
    - Add info here

Specific LD: Language Problems

- Oral language, reading, and writing are an integrated system
  - Fulfils several functions
    - Provides a means of communication
    - Provides a means of socialization
    - Enables culture to be transmitted across generations
    - Vehicle of thought

Specific LD: Language Problems

- Forms of language:
  - Listening
  - Speaking
  - Reading
  - Writing

- Primary language system
  - Listening and speaking

- Secondary language system
  - Reading and writing
Specific LD: Language Problems

- Receptive skills
  - Listening and reading
- Expressive skills
  - Speaking and writing

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<th>Expressive</th>
<th>Receptive</th>
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<td>Primary</td>
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<td>Secondary</td>
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- Language is a communication process
- Involves sending and receiving a message
- Understanding the communication process helps in dealing with communication problems

Linguistic Systems

- Linguistics is the study of the pattern of language systems and the nature, development, function, and use of language.
  - Attitudes toward language
  - Linguistic systems
    - Phonology
      - System of speech sounds in a language
      - Smallest unit = phoneme
**Linguistic Systems**

- **Morphology**
  - System of meaning units in a language
  - Smallest unit = morpheme
- **Syntax**
  - Grammar system of the language
- **Semantics**
  - Word meanings in a language
- **Pragmatics**
  - Social side of language
- **Other parts of the language system**
  - Intonation

**Neuroanatomy of Language**

- **Wernicke’s area**
  - Left temporal lobe
  - Language comprehension
- **Broca’s area**
  - Right temporal lobe
  - Word finding and use of grammar

**Language Problems of Students with LDs**

- Lack of phonological awareness
- Slowness in naming; word finding problems
- Nonstandard English
- Limited English proficiency
Language Disorders

- Speech Disorders
  - Abnormalities of speech
    - Articulation difficulties
    - Voice disorders
    - Fluency difficulties
  - Language delay
  - Language disorders

Reading Disorder

- Clinical features (Diagnostic Criteria)
  - Reading achievement that is substantially below that expected given the individual's age, intelligence, and education
  - Significantly interferes with academic achievement or activities of daily living involving reading skills
  - Not due to a sensory deficit

- Reading characterized by distortions, substitutions, and omissions
- Affects both oral and silent reading

- Associated features
  - Demoralization
  - Low self-esteem
  - Deficits in social skills
  - High drop-out rates
  - Comorbid with CD, ODD, ADHD, Major Depression, Dysthymia, and other LDs
Reading Disorder

• Etiology
  – Genetic predisposition
  – Perinatal injury
  – Neurological and other medical conditions
    • Lead poisoning, FAS, fragile X syndrome
  – Phonological processing deficit
  – May have a general processing speed deficit
  – Magnocellular pathway
  – Brain’s white matter

Reading Disorder

• Gender Features
  – 60-80% are male

• Prevalence
  – 4% for school-aged children

• Course
  – Some symptoms may occur as early as kindergarten
  – Not typically diagnosed before the end of kindergarten or the beginning of 1st grade
  – With a high IQ, may not be diagnosed until around 4th grade

Disorder of Written Expression

• Clinical features (Diagnostic Criteria)
  – Writing skills that fall substantially below those expected given the individual’s age, intelligence, and education
  – Significantly interferes with academic achievement or activities of daily living that involve writing
  – Not associated with a sensory deficit
  – Difficulties in composing written text
    • Not diagnosed if there are only spelling error or poor handwriting in absence of other criteria
Disorder of Written Expression

• Prevalence
  – Difficult to estimate, but probably around 2-4%
• Course
  – Seldom diagnosed before the end of 1st grade
  – Some symptoms may appear as early as the beginning of 1st grade
  – With a high IQ, may take longer to diagnose—perhaps to 4th grade

Expressive Language Disorder

• Clinical features (Diagnostic Criteria)
  – An impairment in expressive language development that is substantially below that obtained in both nonverbal intellectual capacity and receptive language development
  – Interferes with academic achievement, occupational functioning, and social functioning

Expressive Language Disorder

– If MR or speech-motor/sensory deficits are present, the language difficulties are more severe than would be expected given these associated features
– Includes difficulties with both oral and sign language
– Linguistic features vary depending on the severity of the disorder and the age of the individual
– Nonlinguistic functioning is WNL
**Expressive Language Disorder**

- Acquired vs. Developmental
  - Acquired Type
    - Impairment occurs after a period of normal development as a result of neurological or other general medical conditions
  - Developmental Type
    - Impairment is not associated with a neurological insult.
    - Depend on pointing and gesturing to make their wants/needs known
    - Can understand language produced by others

**Expressive Language Disorder**

- Dysnomia
- Apraxia

- Associated features
  - Phonological Disorder
  - Rapid rate and erratic rhythm of speech
  - Disturbances in language structure
  - Other speech problems
  - School and learning problems

**Expressive Language Disorder**

- May be a mild impairment of receptive language
- Delay in reaching motor milestones not uncommon
- Social withdrawal
- Comorbid with ADHD and other disruptive behavior disorders

- Gender features
  - More common in males than females
Expressive Language Disorder

• **Prevalence**
  – 3-5% for Developmental Type
  – Acquired Type is less common

• **Course**
  – Developmental type
    • Recognized by 3 years of age
    • Milder forms may not be recognized until early adolescence
    • Outcome is variable
      – 50% outgrow; 50% have long-lasting difficulties
    • Most children will have normal language by adolescence

Expressive Language Disorder

– Acquired Type
  • Onset is sudden
  • Occurs at any age
  • Prognosis depends on severity and location of insult, age of the child at the time of the injury, and the extent of language development at the time

• Familial patterns
  – More likely to occur in children of individuals who have a family history of language and communication problems

Mixed Expressive-Receptive Language Disorder

• **Clinical Features (Diagnostic Criteria)**
  – Impairment in both expressive and receptive language that is substantially below measured nonverbal intelligence
  – Impairs academic achievement, occupational achievement, and social functioning
  – Does not meet criteria for PDD
  – If there are other deficits present, the difficulties are greater than would be expected, given the other deficits
Mixed Expressive-Receptive Language Disorder

- Occurs in both oral and sign language
- Markedly limited vocabulary
- Errors in tense
- Difficulty recalling words or producing sentences
- Difficulty expressing ideas
- Difficulties understanding words, sentences, or specific types of words

Mixed Expressive-Receptive Language Disorder

- Echolalia
- Some have problems with discrimination of pitch/tone
- Mild vs. Severe cases
- Acquired vs. Developmental
  - Acquired Type
    - Impairment occurs after a period of normal development as a result of a neurological or other general medical condition
  - Developmental Type
    - Impairment not associated with neurological damage

Mixed Expressive-Receptive Language Disorder

- Associated features
  - Linguistic features similar to Expressive Language Disorder
    - Deficit in comprehension discriminates between the two disorders
      - May be less obvious to observers and only be found on standardized tests
    - May appear to not hear/be confused/not paying attention when spoken to
    - May follow instructions poorly, if at all.
Mixed Expressive-Receptive Language Disorder

- May be exceptionally quiet or talkative
  - In the latter case, conversational skills are poor
- Deficits in sensory information processing
  - Especially temporal auditory processing
- Deficits in motor coordination
- Comorbid with Phonological D/O, LD, ADHD, Developmental Coordination D/O, Enuresis

Mixed Expressive-Receptive Language Disorder

- Gender features
  - Developmental Type more common in males
- Prevalence
  - Developmental Type may occur in 3% of school children
  - May be less common

Mixed Expressive-Receptive Language Disorder

- Course
  - Developmental Type
    - Usually detectable before age 4
    - Milder forms may not be noticeable until elementary school
    - Many children do develop normal language skills
    - Prognosis worse than for children with Expressive Language D/O
  - Acquired Type
    - Occurs at any age
    - Prognosis depends on the location and severity of brain injury, age of the child at the time of the injury, and the extent of language development
Phonological Disorder

• Clinical Features (Diagnostic Criteria)
  – Failure to use developmentally expected speech sounds that are appropriate for age and dialect
  – Interfere with academic or occupational achievement or social functioning
  – If other deficits are present (MR, sensory deficits), the impairment is worse than would be expected given the other impairments

Phonological Disorder

– Includes errors in sound production, use, representation or organization, substitutions of one sound for another, or omissions of sounds.
  – Articulation errors involving failure to form speech sounds correctly
  – Cognitive problems that involve a deficit in linguistic categorization of speech sounds
  – Most frequently misarticulated sounds:
    • l, r, s, z, th, ch

Phonological Disorder

– Lisping is fairly common
  – May also involve errors of selection and ordering of sounds within words and syllables
  – Severity ranges from mild to severe

• Associated features
  – May have hearing impairments, structural deficits of oral peripheral speech mechanism, neurological conditions, cognitive limitations, or psychosocial problems
Phonological Disorder

• Gender features
  – More common in males than females

• Course
  – In severe cases, language may be unintelligible even to close family members
  – Milder forms may not be recognized until elementary school

Phonological Disorder

• How to test for Phonological Disorder
  – Rhyme Oddity
  – Alliteration Oddity
  – Blending
  – Elision

Assessing Oral Language

• Purpose
  – Determine the language abilities children have acquired
  – Assess any language problems
  – Assess functional use of language

• Should cover both parts of oral language
  – Listening and speaking

• Typically uses standardized tests
Assessing Oral Language

- These tests include:
  - Boehm Test of Basic Concepts—Revised
  - Clinical Evaluation of Language Fundamentals—Revised (CELF-R)
  - Detroit Tests of Learning Aptitude—4 (DTLA-4)
  - Fullerton Language Test for Adolescents

Treatment of Learning Disorders

- Behavior Therapy has been used successfully in the treatment of LDs
  - Three Domains in which it has been applied
    - development of specific skills
    - development of organizational and problem-solving strategies
    - treatment of problems in attitude or effect
- Principles of Behavioral Therapy
  - identify the targeted behavioral goal, such as acquisition of a set of facts, concepts, or overt behaviors
  - break down the goal into its constituent parts

- arrange the parts sequentially, in successive approximations toward the goal
- identify which is the most appropriate first step for the individual
- allow the child to work through the program, systematically progressing along the successive approximation sequence
- provide contingent feedback at each step
Treatment of Learning Disorders

• Has been used to develop specific skills
  – BBRs
  – Data supports use

• Treatment for problems associated with LDs
  – Social skills deficits
  – Anxiety
  – CD
  – Poor self-esteem