

# Education 173 Cognition and Learning in Educational Settings

Human Exceptionality  
Fall Quarter 2007

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## Responding to Student Differences

- Students vary in ways that are relevant to education.
- Teaching is most effective when it takes student variation into account.



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## What is Special Education?



- The education of children who deviate from average to such an extent that they require:
  - major modifications of the usual school practices, or
  - Access to regular education with adaptations.

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## What is Exceptionality?

- Differences from average are large enough to require modification of educational experience.
- Differences are found in multiple dimensions.
  - Intellectual, emotional, sensory, physical
- To be an effective teacher requires some understanding of disabilities.

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## Mainstreaming

- Trend Toward Inclusion in Schooling
- From Neglect, to Isolation, to Inclusion, to Full Integration, When Possible, Into Activities with Normal Peers.
  - Prior to 1900, Isolated Efforts
  - Until 1960, Segregation
  - Since 1975, Mandatory Free and Appropriate Education in the Least Restrictive Environment.

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## What Federal Laws Guarantee

- Public Law 94-142 and IDEA
- Full educational rights until age 21
- Rights include:
  - Free and appropriate education
  - Fair and nondiscriminatory evaluation
  - Appropriate assessment; separation of disability from English language ability.
  - Education in the least restrictive environment
  - An individualized education program
  - Due process
- Parental involvement is expected

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## Intellectual Disability (Mental Retardation)

- A Category of Special Education
- Defined by:
  - Significantly sub-average mental functioning
    - Often IQ or 70 or lower
  - Limitations in two or more skill areas
    - Communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, work
  - Must manifest before 18

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## Causes of Mental Retardation

- Chromosomal Abnormalities (5%)
  - Down Syndrome (Trisomy 21)
- Infection and Intoxication
  - Congenital rubella; fetal alcohol syndrome
- Trauma
  - Birth trauma, anoxia
- Sociocultural
  - Poverty and neglect



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## Classification by Severity

IQ Range	By Severity
55-70	Mild (90%)
40-55	Moderate
25-40	Severe
25 and lower	Profound

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## Intellectual Characteristics of Retarded Students

- Often Ineffective Learning
  - Achievement deficits; poor reading skills
- Deficiencies in Metacognition
  - Strategies for remembering
  - Keeping track of multiple goals
  - Monitoring comprehension
- Emotionally At-Risk
  - History and expectation of failure
  - Risk of learned helplessness



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## Strategies for Teaching Retarded Students

- Early Intervention
- Recognize Accomplishments Rather than Make Comparisons
- Use Collaborative Learning
  - Buddy programs, peer tutoring, cross-age tutoring
- Make Instruction Explicit
  - Giving directions
  - Presenting ideas



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## Emotional and Behavioral Disorders

- Related terms: emotionally handicapped, emotionally disturbed.
- Prevalance: About 10% of those receiving special education services.
- Defining behavior must be exhibited:
  - over a long period of time
  - to a marked degree.
  - May be manifest as an inability to maintain relationships; pervasive unhappy mood; inability to learn that cannot be explained by intellectual, sensory, or health limitations.



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## Examples of Behavioral Disorders

- Aggression
- Violence
- Theft
- Arson
- Depression
- Excessive shyness
- Withdrawal
- Anxiety disorders
- Tic disorders, including Tourette's
- Eating disorders
- Oppositional defiance
- Schizophrenia
- Autism

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## Intelligence and Achievement

- Severely Disturbed Children Tend to Have Low IQ, in the Retarded Range (<70)
  - Contrary to some stereotypes of the bright, bored student who acts up
  - Higher IQ has better prognosis for learning
- Academic Achievement is Often Below Average
- Difficulty Dealing with the Demands of School
  - Paying attention, coming to class on time and prepared, following directions, completing assignments, social skills

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## Strategies for Students with Behavioral Disorders

- Prescribed Medications Can Sometimes Help
- Highly Structured Classroom Environment
- Behavioral Modification
  - Reinforcement schedules; token economies
- Social Intervention
  - Attention to improving health care, parenting, role models, conflict resolution



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## Adaptations for Students with ADHD

- For keeping on task
  - Break tasks into smaller, manageable units
  - Use hands-on activities
  - Use check-lists for self-monitoring
- For listening
  - Allow doodling or standing
- For excessive activity
  - Use activity as rewards
  - Allow standing during class
- For impulsive behavior
  - Provide acceptable alternatives (writing down questions and answers instead of blurting out)
  - Teach acceptable behavior, such as acceptable alternatives
- ADHD: Adderall, Ritalin
  - Improved attention, improved memory

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## Learning Disabilities



- By Far, the Largest Category of Special Education Disabilities
  - Over half of special education students
- Term was coined in the 1960s
- Manifest as a specific processing deficits
  - Reading, writing, mathematics, listening, spelling
  - By far, the most common learning disability is with reading--dyslexia

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## Discrepancy Definition

- Students with Learning Disabilities Are Assumed to Have Normal Intelligence
  - Disability is specific (not general, as retardation)
  - Skill area must be around 2 standard deviations below general intelligence (IQ)
- Some Experts Take Issue with the Discrepancy Hypothesis and Requirement



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## Types of Learning Disabilities

- **Dyslexia: Written Language**
  - Pronounced difficulty in reading, writing, spelling
  - Often the product of poor phonological awareness: Inability to distinguish sounds or to perceive order of phonemes
- **Dyscalculia: Arithmetic; Number Concepts**
- **Speaking Disorder: Pragmatic uses of language**
- **Presumed to Have Origin in a Brain Processing Deficit**
- **Are Learning Disabilities Oversubscribed?**

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## Strategies for Students With Learning Disabilities

- **Instruction Targeted To Deficit Areas**
- **Low-Level Skills in Reading**
- **Flexibility in Instruction and Assessment**
  - More Time on Tests, Assignments
  - Permit Lectures to be Recorded
  - Oral administration of tests
- **But Many LD Children are Pursuing Higher Education**
  - Services available at many colleges and universities



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## Hearing Impairments

- **Kinds of Hearing Loss**
  - Peripheral: Ear or auditory nerve
  - Central: Brain
- **Causes**
  - Congenital (Genetic) only 4%
  - More often disease, trauma, excessive noise
- **Age of Onset is Critical Factor**
  - Earlier onset is more serious
  - Prelingual/Postlingual Onset



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## Degrees of Hearing Loss

Hearing Loss in Best Ear	Severity	Effect on Understanding and Producing Speech
0-25 db	Insignificant	Insignificant
25-40 db	Mild	Difficulty with faint speech
40-60 db	Severe	Difficulty with normal speech
60-80 db	Moderate	Difficulty with loud speech
80- db	Profound	Cannot understand speech

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## Achievement Among Deaf Students

- School Achievement is Below Normal
  - In reading, especially, gap can be several years below expectations
- If Sign Language is Used, English is Often the Equivalent of a Second Language
- A Deaf Child Peer Group is Often Other Deaf Children
  - The deaf community is also most strongly an independent culture
  - Not all deaf people regard mainstreaming as desirable

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## Strategies for Teaching Deaf Students

- Translator to sign for student
- Technologies
  - E-mail
  - Close captioning
  - TDD: Telecommunication Device for the Deaf
- Seating Close to Teacher
  - For hard of hearing students
- Use and Proper Care of Hearing Aids



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## Visual Impairments



- Legally Blind
  - Only 20 percent are totally blind
  - Acuity of 20/200 or worse, after correction
  - Or visual field of 20% or less
- Partially Sighted
  - Acuity of 20/70, better eyes, after correction

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## Causes of Visual Impairments

- Refractive (Light-Focusing) Disorders
  - Astigmatism
  - Myopia & hyperopia
- Muscle Disorders
- Receptive Disorders
  - Retinopathy of prematurity--excessive oxygen to newborn
  - Detached retina
  - Glaucoma--retinal nerve damage
  - Color blindness

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## Characteristics of Visually Impaired Students

- Lags in Academic Achievement
  - About two years behind sighted peers
  - Differences in experience (social/physical)
  - Common delays in social and language development
    - Inability to perceive social cues
    - Inability to read gestures, facial expressions
- Misconception: Greater Acuity in Unaffected Senses (e.g., sharper hearing)

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## Strategies for Teaching Students with Visual Impairments

- Large Type Books, Computer Screen
- Audio Recordings
- Braille
  - Derived from “night writing” by Louis Braille
- Scanner/Speech Synthesizer
- Mobility
  - Cane and guide dog
  - Clear information about physical layout
  - Barrier-free environment; ready access

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## Physical Disabilities and Health Disorders

- Traumatic Brain Injury
- Spinal Cord Injury
- Cerebral Palsy
- Spina Bifida
- AIDS
- Epilepsy
- Diabetes
- Child Abuse and Neglect
- Adolescent Pregnancy
- Suicide
- Drug Addiction



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## Giftedness

- One Form of Exceptionality
- But Not a Special Education Category
- Often Well-Adjusted
  - Contrary to Stereotypes
    - Except Possibly at Extremely High Ability
- Often Multiple Criteria Are Used to Identify
  - High IQ (e.g. IQ>125)
  - Very high achievement
  - Unusual creativity and talent



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## Approaches to Gifted Education

- Two Basic Approaches
  - Acceleration
    - Moving through the curriculum quickly
  - Enrichment
    - Greater exploration but not more advanced content
- Teaching Strategies:
  - Optimize level of structure: High ability students often thrive with less structure than is typical in schools
  - Use open-ended tasks/questions
  - Promote problem finding

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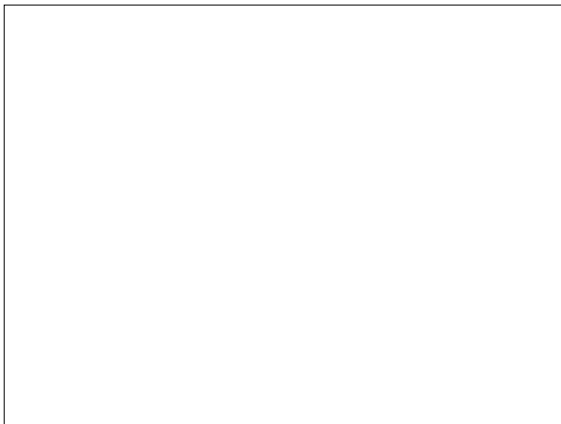
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