[Lecture 4]

Chapter 4: Intellectual Disabilities

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Definitions of Intellectual Disabilities:

- IDEA: A "significant sub average general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period, that adversely affects a child's educational performance."

- AAIDD (American Association on Intellectual and Developmental Disabilities): "Intellectual disability is characterized by significant limitations in both intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills. This disability originates before age 18."

Classification of Intellectual Disability by IQ score:

Level	IQ Score
Mild	50-55 to approximately 70
Moderate	35-40 to 50-55
Severe	20-25 to 35-40
Profound	Below 20-25

Source: Diagnostic and Statistical Manual of Mental Disorders (American Psychological Association)

Identification and Assessment:

Assessing Intellectual Functioning: Assessment of a child's intellectual functioning requires the administration of an IQ test by a school psychologist or other trained professional. IQ test is a series of questions (vocabulary, similarities), problem solving (mazes, block designs), memory and other tasks assumed to require certain degrees of intelligence to answer or solve correctly. They are standardized (same questions and tasks are always presented in a prescribed way) and norm referenced (administered to a large no. of people selected randomly from the target population) tests. They are useful for objectively identifying overall deficits in cognitive functioning and have proven to be a strong predictor of school achievements.

Assessing Adaptive Behavior: It is "the collection of conceptual, social and practical skills that have been learned by people in order to function in their everyday lives." Some of the instruments for assessing adaptive behavior are the following: AAMR Adaptive Behavior Scale, AAIDD Diagnostic Adaptive Behavior Scale, Vineland Adaptive Behavior Scale, Adaptive Behavior Assessment System.

Characteristics: Most people suffer from intellectual disability throughout their lifetime even though they do improve their adaptive skills. Many children with mild intellectual disabilities are not indentified until they enter school and some not until they reach the second or third grade when more difficult academic work is required. Most students with mild intellectual disabilities master academic skills up to about the sixth grade level and can learn vocational and daily living skills well enough to support themselves independently or semi-independently in the community. While children with moderate intellectual disabilities are identified during their preschool years and as they grow older, children with severe and profound disabilities are almost always identified at birth or shortly after. Most of them have central nervous system damage, additional disabilities or health conditions.

- Cognitive functioning:
    i) Memory: children with intellectual disabilities take longer than other children without disabilities to automatically recall information and have more difficulty handling large amounts of cognitive information at one time. Therefore, recent research has focused on teaching children with intellectual abilities metacognitive or executive control strategies such as rehearsing and organizing information into related sets, which many children without disabilities learn to do naturally.
    ii) Learning rate: children with intellectual disabilities learn at a slower rate than other children. A frequently used measure of learning rate is 'trials to criterion' which is the number of practice or instructional trials needed before a student can respond correctly without prompts or assistance. For example, while a typical child can learn something in 2 to 3 trials, a child with intellectual disabilities may learn in 10 or 20 trials.
    iii) Attention: students with intellectual disabilities are typically slower to attend to relevant features of a learning task than are students without disabilities and instead, they may focus on distracting irrelevant stimuli. They may also have difficulty sustaining attention to learning tasks. Therefore, this adds to the difficulty in acquiring, remembering and generalizing new knowledge and skills.
    iv) Generalization and maintenance: students with intellectual disabilities have trouble using their knowledge and skills in settings or situations that differ from the context in which they first learned those skills. This is one of the most challenging in areas in the research for special education.
    v) Motivation: many students with intellectual disabilities exhibit a lack of interest in learning. It may be learned helplessness which means a persons' expectation of

failure due to repeated failure in the past. Thus they may set low expectations for themselves. Thus, they may lack motivation to learn.

- Adaptive behavior:
    i) Self care and daily living skills: people with intellectual disabilities must be taught daily living skills like dressing, eating and hygiene. Most people with mild intellectual disabilities learn to take care of themselves but they can benefit from training in self management skills to achieve the levels of performance necessary for independent living and successful employment
    ii) Social development: many people with intellectual disabilities face challenges in developing personal relationships and sustaining friendships. They may be socially isolated due to poor communication skills, inability to recognize the emotional state of others and unusual or inappropriate behaviors. Therefore, teaching appropriate social and inter personal skills is one of the most important functions of special education.
    iii) Behavioral excesses and challenging behavior: students with intellectual disabilities are more likely to display behavioral problems than other students. The more sever the intellectual impairment, the higher the incidence and severity of problem behavior. For example, difficulty accepting criticism, limited self control, aggression or self injury. The incidence of mental illness and behavior disorders in children and adults with intellectual disabilities is about two to three times higher than that of the general population.

- Positive attitudes: Although the description of characteristics of people with intellectual disabilities focuses on their limitations and deficits, in reality, they are all unique individuals and they have their own different personalities. Many children and adults with intellectual disabilities can get along well with others and can have a positive influence on those around them.

Prevalance: Some of the factors that lead to difficulties in estimating the number of people with intellectual disabilities are changing definitions of intellectual disabilities, the schools' reluctance to label children with mild intellectual development and the changing status of school children with mild intellectual disabilities. During the 2009-2010 school year, 460,964 students (7.8% of school age children) aged 6 to 21 received special education under the disability category of intellectual disabilities.

Causes and prevention:

- Biomedical causes: Biomedical causes or etiological risk factors such as chromosomal disorders, single-gene disorders, metabolic disorders, maternal illnesses, premature birth, traumatic brain injury etc can lead to intellectual disorders. According to AAIDD Ad Hoc Committee, 2010 "Because intellectual disability is characterized by impaired functioning, its etiology is whatever causes this impairment in functioning."
- Environmental causes: when no biological risk factor is evident, the cause for intellectual disability is presumed to be psychosocial disadvantage or environmental influences such as poverty, minimal opportunities to develop early language, child abuse and neglect etc. The term 'intellectual disability of cultural-familial origin' is often used by professionals.

- Prevention: Medical science has advanced to such an extent that many of the problems can be prevented. For example, getting vaccination for rubella or German measles by women before becoming pregnant can prevent the disease. If rubella is contracted during pregnancy it causes damage in 10-40% of unborn children but fortunately, it can now be prevented. Similarly, detection of genetic disorders is possible through 2 types of tests which are screening procedures and diagnostic tests. Non invasive procedures such as ultrasound can help in early detection of problems. In addition to this, new born screening tests for inherited conditions and biomedical risk factors are now mandatory in every US state. A procedure called tandem mass spectromy measures various components of blood, urine or plasma in about 2 to 3 minutes for 20 to 30 different metabolic disorders. A simple blood test administered to all babies born in the US has greatly reduced the incidence of intellectual disabilities caused by phenylketonuria (PKU - a rare genetic condition in which the body cannot break down the essential amino acid phenylalanine). Most children with PKU who receive treatment have normal intellectual development. Other preventable major causes of intellectual disabilities are toxic exposure through maternal substance abuse and environmental pollutants.

Educational Approaches:

- Curriculum goals
  (1) Academic curriculum: Students with intellectual disabilities should receive instruction in basic skills or reading, writing and math. However, it is not easy to develop a curriculum as what is successful for one student may not be for another. Teachers must carefully assess the student's current routines to find those skills that the student requires or could use often. Care must be taken that a student's involvement in the academic portions of the general education curriculum does not limit opportunities to learn the skills that will help him or her function independently and successfully in current and future environments.
  (2) Functional curriculum: The points to focus on whether a particular knowledge or skill is functional or not are whether learning a particular knowledge or skill will help the student be more independent and successful in his home, school or

community and if failure to learn the knowledge or skill have any negative consequences to the student. If the curriculum is irrelevant to the child, "years of valuable opportunities for meaningful learning can be wasted" (Knowlton, 1998). Learning of functional skills are particularly important during middle and secondary school as it can help them transition into adult life.

(3) Self determination: Learning self determination skills such as setting personal goals, planning steps for achieving those goals, evaluating their performance etc. is very important for students with intellectual disabilities. Teaching students to take responsibility for their learning is an important part of self determination. (for example, teaching students to make statements to the teacher like "how am I doing?" or "Look, I'm all finished.")According to a general education teacher, children who took responsibility for their learning "fit in better, they were more part of the group, and they weren't being disruptive because they were working."

- Instructional methods
  (1) Task analysis: It includes breaking down complex tasks into smaller, easier to learn subtasks. The sub skills or sub tasks are then sequenced, either in the natural order in which they are typically performed or from easiest to most difficult. Assessing a student's performance on a sequence of task-analyzed subskills helps pinpoint where instruction should begin.

  (2) Active student response (ASR): According to Heward, ASR is " an observable response made to an instructional antecedent. ASR occurs when a students emits a detectable response to ongoing instruction. The kinds of responses that qualify as ASR are as varied as the kinds of lessons that are taught. Depending upon the instructional objective, examples of ASR include words read, problems answered, boards cut, test tubes measured, praise and supportive comments spoken, notes or scales played, stitches sewn, sentences written, workbook questions answered, and fast balls pitched. The basic measure of how much ASR a student receives is a frequency count of the number of responses emitted within a given period of instruction.

  (3) Systematic feedback: Feedback is most efficient when it is specific, immediate, positive, frequent, and differential. For example "You read 110 words today, that's five more than yesterday." Werts and colleagues also talked about instructive feedback which can greatly influence the efficiency of learning. It means providing extra information when giving feedback on student's responses. For example, if a student reads the word 'corn' correctly, the teacher might say "Right, this word is 'corn', it's a vegetable." The instructive feedback is the statement "it's a vegetable". Studies have found out that instructive feedback does help children in gaining extra knowledge as they learn additional information. Feedback during the 'acquisition stage of learning' (the stage of learning a new

skill) is also very important and feedback should follow each response focusing on the accuracy and form of the student's response. In the next stage when the student begins to perform the newly learned skill with some consistent accuracy, (during the 'practice stage of learning'), feedback should emphasize the correct rate at which the student performs the target skill.

(4) Transfer of stimulus control: As trial and error can be very frustrating for students with intellectual disabilities, the teacher should provide a prompt such as physical guidance, verbal directions, pictures etc. that makes a correct response very probable. Thus the correct response is reinforced, the prompt is repeated and another correct student response is reinforced. The prompts are then gradually withdrawn so that the student's responding comes under the stimulus control of natural cues that occur in the learner's everyday environment.

(5) Generalization and maintenance: Generalization and maintenance refers to the extent to which students use what they have learned across settings and over time. Some of the strategies for promoting generalization and maintenance are:

   (a) Maximize contact with naturally occurring reinforcement contingencies: it means increasing the probability of a student's newly learned skill will be reinforced in the natural environment. Teachers can accomplish this by teaching students functional skills that students need and teaching students to perform new skills with accuracy and fluency necessary to produce reinforcement in the natural environment.

   (b) Program common stimuli: if the generalization setting differs greatly from the setting where teaching takes place, the student may not perform the new behavior. Thus it is important to incorporate into the teaching situation as many typical features of the generalization setting as possible and create a new common stimulus that the student learns to use in the teaching setting and can transport to the generalized setting, where it prompts or assists performance of the target skill.

   (c) Community based instruction: teaching in the actual setting where students are ultimately to use their new skills increases the probability of generalization and maintenance. For example, according to Morse and Schuster's findings, (2000), 2 days per week of community-based instruction supplemented by stimulation training in the classroom were effective in teaching students with intellectual disabilities to shop for groceries.

(6) Direct and frequent measurement: teachers should verify the effects of their instruction by measuring student performance directly and frequently. Measurement is direct when it objectively records the learner's performance of the behavior of interest in the natural environment for that skill. Measurement is frequent when it occurs on a regular basis, ideally, as often as instruction occurs.

If direct and frequent measurement is not done, teachers may be prone to continue ineffective instruction even though no real learning has occurred or they may discontinue or change an effective program of instruction because the teacher's subjective judgment detects no improvement.

Education Placement Alternatives: These days students with intellectual disabilities are increasingly being educated in the general classroom rather than in segregated settings. Since the early 1970's the principle of normalization has provided a basis for improving the lives of those with intellectual disabilities. According to Wolfensberger (1972), normalization is used "to establish and maintain personal behaviors which are as culturally normal as possible." It means people with intellectual disabilities should be both physically and socially integrated into everyday society regardless of their degree or type of disability. In 1983, he also proposed the concept of 'social role valorization' (SRV) which is the use of culturally valued means to enable, establish, enhance, maintain, and/or defend valued social roles for people at value risk so that they can gain acceptance in the society.