Teaching Students with Moderate to Severe Intellectual Disabilities

MARY OWENS, M.A.
Education Specialist
Diagnostic Center, South
California Department of Education
www.dcs-cde.ca.gov

Diagnostic Centers
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Diagnostic Center, South
4339 State University Drive
Los Angeles, CA 90032
(323) 222-8090
www.dcs-cde.ca.gov

Topics To Be Covered

- Understanding intellectual disability with emphasis on students with moderate and severe disability
- Characteristics of the student’s learning and the implications for educational programming
- Selecting appropriate evidence-based practices (EBP)
- Designing learning, communication and behavioral supports

What Is Intellectual Disability?

Intellectual Disability, formerly called Mental Retardation*

- Defined and renamed many times throughout history
- Consistent across all definitions are difficulties in learning, social skills, everyday functioning
- Diagnosed based upon reduced cognitive abilities (intelligence) and daily functioning (interactions with environment)

* American Association on Intellectual and Developmental Disabilities (AAIDD)
**Concept of IQ (Intellectual Quotation)**

- ID/MR is IQ score under 70, (with reduced adaptive behaviors)
- 2-3% of population impacted by Intellectual Disability
- IQ ranges reflect categories or “impact” of MR/ID

<table>
<thead>
<tr>
<th>DSM** categories</th>
<th>Ed Code</th>
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<tbody>
<tr>
<td>Mild</td>
<td>75-90%</td>
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<tr>
<td>Moderate</td>
<td>Eligible as ID/MR; Programming implications</td>
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<tr>
<td>Severe</td>
<td>10-25%</td>
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<tr>
<td>Profound</td>
<td>- Severely Handicapped</td>
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*IQ, as measured by standard testing is complex
**Diagnostic and Statistical Manual of Mental Disorders

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**Causes**

- Estimated 68% from genetic syndromes
- Smaller % caused by
  - Serious infection
  - Head trauma
  - Metabolic
  - Exposure to toxins (lead, alcohol)
- Estimated 27% from unknown causes

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**History of Services**

- Before and through 18th and mid-20th century was characterized by “institutional model”
- In 1960s began looking at effects of segregation in institutions
  - Scandals over conditions in state institutions
- In 1970s move towards “normalization”
  - Landmark PL-94-142 (1975) public schools required to provide services for the first time
  - Placement in “Developmental Centers”
  - Teacher credentialing/training was separate from traditional academic teaching
  - Curriculum was developmental skills and some practical skills
  - “Bottom-up” approach
- Late 70’s Lou Brown proposed a “top-down” in which the environment generated target options
  - Curriculum should be functional, practical, lead to independence
  - Key words: “community-based skills” and “critical life skills”
- 70s behaviorism is major emphasis in teacher training; task analysis is introduced
- Continued into the late 80’s
- 90’s brought inclusion, often social goals

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**What the CDE says about the CAPA student learner:**

- Requires substantial adjustments to the general ed curriculum
- May participate in many of the same activities as his or her (general ed) peers
- However, learning objectives and expected outcomes focus on the functional application of the general curriculum

* 2007, California Department of Education
The CAPA student’s IEP umbrellas

Critical adaptive behaviors
- Toileting
- Dressing
- Feeding
- Communicating
  - Recreation and leisure skills
- Vocational skills
- Community skills

Functional application of the general curriculum
- “Functional Academics”
  - Reading
  - Writing
  - Math
  - Science
  - History/Social Studies

Definition of “Functional Academics”
- Reading, writing, math, science, etc. skills that:
  - have immediate practical application in the student’s current environments
  - are typically not taught in the traditional developmental sequence
  - use many types of supports such as photos, pictures and icons to support reading and language skills or money matching cards to enable the student to make purchases

Characteristics of the Student’s Learning

Development sets the parameters

Environment and experience set the stage

What does it look like… Reading?
- Follow a object/photo/icon/sight word schedule
- Put away objects by matching object to picture
- Recognizing his/her printed name
- Make “lists” (Shopping, To Do) using pictures or written words
- Look at books, read/listen to stories, movies for leisure

What does it look like… Math?
- Transition at a signal (bell, verbal direction, visual schedule)
- Follow a photo/icon/sight word recipe using 1 cup and 1 teaspoon measurement tools
- Associate $1, $5, $10, $20 with specific purchases
- Will recall and punch in PIN on ATM card to make a purchase
- Read clock times to follow a schedule

Characteristics of the Student’s Learning

- Look at clusters of skills, concepts and styles of reasoning* that help us understand… how the learner learns
- Tells us how the teacher teaches
- What strategies and supports the teacher should provide
- What “next-steps” to target

* Based upon cognitive developmental theory (understanding of brain maturation and interactions with the environment)
For Example: Understanding Symbols

- Does the student get meaning from symbols?
- At what level can the student use symbols?
- Impacts teaching strategies/supports

"Symbolic Ladder"

- Word, sign, text
- Icon
- Picture
- Photo
- Miniature or part of the object
- the Object

3 Types of Student Learners*

- Pre-Symbolic Learner (CAPA Level 1)
- Pre-academic Learner (CAPA 2-5)
- Early Academic Learner (CAPA 2-5)

Match with intervention strategies and target goals

* D. Browder terminology
** Academic Learner is 4th type of learner, with thinking and reasoning skills beyond learners w/ID

Relating Development to Common Interventions
Learner Profiles

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<tr>
<th>Students</th>
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<th>Pre-Academic</th>
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Pre-Symbolic Learner

Learning profile associated with early-late sensory motor stages (under 24 months)

- Visual searching, reaching, grasping, mouthing, waving, banging, showing, objects just vanishing
- Representational use of familiar items, delayed imitation; very beginning use of "labels"

Blake – Object Permanence

- CAPA Level 1 students
- Typically functioning developmentally below 24 mos.
- Not able to use something to represent something else
- Likely not able or very limited ability to communicate with pictures, words or signs
- Probably not a matcher, or an emerging skill
- No, or very little, understanding of time or sequence
- May anticipate a familiar "next", but not "past"

Blake – Cause/Effect

Pre-Symbolic Learner

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Greg
Teacher Consult:

Examples of aiming too high

- No or limited ability to use PECS or sign language
- Picture/icon schedule not working
- Can’t follow the top to bottom or left to right sequence
- Delayed reinforcement not working
- Depending upon temperament, this student is at high risk for challenging behaviors, BECAUSE ...............
Pre-academic Learner
Learning profile associated with 2-4ish year old development

- Can represent things; can use symbols
- Photos, pictures, words, text can represent things, activities, people, locations
- Is a labeler; likely uses pictures, words or short phrases
- Is a matcher and learning to classify
- Has “next” and some “past”

Pre-academic Learner

- Associative reasoning style; things/events are “clumped together” based upon associations, not logical understanding
- Assessor: Why does it rain?
- Student: Clouds… boots… umbrella… go to grandma’s house
- Discriminates by size and limited quantity; not have one-to-one correspondence
- CAPA Level 2-5 student

One-to-One Correspondence

One-to-one correspondence means a child can pair two or more objects, one to one.
For example, a learner has a group of red checkers and a group of black checkers and puts one red checker with each black. If the learner matches the red and black checkers 1 to 1, leaving out any extra, then the one-to-one arrangement has concretely demonstrated - there is the same number of checks in each row.

One-to-One Correspondence

Not 1-to-1

The pre-academic learner is a labeler.

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Examples of aiming too high, or too low

- No or limited 1-to-1 so Touch Math not working
- May have rote identified survival sight words & logos, but have not been embedded into functional classroom routines
- Depending upon age, may be bored by same activity year after year; depending upon temperament, high risk for challenging behaviors

Rocky – Communication Supports

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## Relating Development to Common Interventions

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<tr>
<th>Strategy</th>
<th>Pre-Symbolic (6 months)</th>
<th>Pre-Adademic (0-5 years)</th>
<th>Early Academic (K-2nd grade)</th>
<th>Traditional Academic Learners 3rd grade +</th>
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### Early Academic

Learning strategies associated with K-2nd “ish” development

- **Good symbol user**
- Likely uses words, icons, printed words to get and give information
- Classification skills
- Likely has 1:1 correspondence, simple number and quantity concepts, but not conservation

### Concept of Conservation

Whether you arrange 8 red and black checkers into groups on a table, or put them in a bag, you still have the same number of checkers.

This is called conservation: the number of objects in a set remains constant, no matter how the objects are arranged.

Conservation of number usually develops around six to seven years of age.

```
R R R R R R R R
BBBBBBBB
```

### Multi-step Visual Sequence

**Ashley – Beginnings of Conservation**

Intuitive (gut-feeling) reasoning style; understanding based upon perceptions, or “scripts,” or “magic”

- **Beware of scripts… a strength and weakness**

Example of “magical thinking”:
- **Assessor:** Why does it rain?
- **Student:** “Firemen come at night and water in the clouds”

A non-logical reasoner
- **CAPA Level 2-5 student**
Examples of aiming too high, or too low:

- Using a calculator to punch in numbers, but limited understanding of the quantities
- Likely has many sight words & logos, but have not been embedded into functional classroom, home or community routines
- Bored but same activity year after year; depending upon temperament, high risk for challenging behaviors

Quality of Life Outcomes for All Learners

- Spontaneous functional communication
- Make choices
- Manage home, school, work environments
- Physical and social participation across all environments

Outcomes for Pre-symbolic Learner

- Spontaneous functional communication
- Make choices
- Manage home, school, work environments
- Participation across all environments
- Behavior is communication
- Presented two objects, will reach or point to signal choice
- Will follow a familiar routine
- Given an object, will transition to the associated location/activity

Outcomes for Pre-Academic Learner

- Spontaneous functional communication
- Make choices
- Manage home, school, work environments
- Participation across all environments
- Communicate with words or pictures
- Follow a picture schedule or multi-sequence of tasks
- Will select clothes to match the weather
- Will have some sight words to use functionally
- Match $1, 5, 10 and 20 dollar bills with specific items to make purchases
Outcomes for Early Academic Learner

- Spontaneous functional communication
- Make choices
- Manage home, school, work environments
- Participation across all environments
- Lots of functional sight words to read and select a break time activity, read school menu item.
- Read and do helper jobs at home for an allowance.
- Make a sight word Shopping List or To Do List.
- Find items in store based upon simple categories

Selecting Evidence-based Practices (IBP)

Development sets the parameters
Environment and experience set the stage

What are “Evidence-Based Practices” (IBP)

- Strategies that have undergone sufficient rigorous research
- Repeatedly show similar results with similar population
- Increase in skills acquisition shown to be result of the strategy
- Question is always “who’s evidence”?
  - Peer-reviewed evidence is one standard

Evidence-based practices have components in common:

- Majority incorporate components of applied behavioral interventions
  - Use task analysis to target a specific, teachable next-step
  - Meaningfully reinforce successive approximations
  - Monitor progress or “mastery”
  - Provide planned opportunities for generalization

Evidence-based interventions associated with students with significant disabilities:

- Direct Instruction
- Embedded Routine
- Chaining Strategies
- Interrupted Behavior Chains (Joint Action Routines)
- Visual Support Strategies
- Prompting Hierarchy

Direct Instruction

Refers to the general principle of teaching skills in a step-by-step, incremental fashion so that new learning is consistently being built upon previous learning. The basic components are:

- task analysis
- identification of target behavior/skills
- meaningful reinforcement of successive approximations
- collecting data on how it’s working

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Task Analysis

- Process of breaking down and sequencing an activity into its component parts
- Clear identification of the target behavior

- Go into the sink
- Pick up the toothpaste
- Take the cap off the tube
- Pick up toothbrush
- Put paste on the brush
- Brush the outside of the bottom row of teeth
- Brush the outside of the top row of teeth
- Brush the biting surface of the top row of teeth
- Brush the biting surface of the bottom row of teeth
- Brush the inside surface of the bottom row of teeth
- Brush the inside surface of the top row of teeth
- Spit
- Rinse the brush
- Replace the brush in the holder
- Grasp cup
- Fill cup with water
- Rinse teeth with water
- Spit
- Wipe mouth on sleeve
- Screw cap back on tube
- Put the tube away

Meaningful Reinforcement

- Refers to the presentation or removal of an object, activity or interaction that results in an increase in a targeted behavior.
  - "Intrinsic" or natural reinforcement (has a natural relationship to the task) is most effective
  - "Extrinsic" reinforcement may be effective, but not related to the task
  - Examples:

Extrinsic Reinforcement

Example - Not Direct Instruction

Example - Direct Instruction
Data collection: 5 Steps for Setting Up a Classroom System

1. Start slow.
2. Keep it simple.
3. Use friendly forms.
4. Embed collection into classroom routine so multiple data collector.
5. Use and share results.

Embedded Routines
- What are essential routines in your class?
- Embedded Routines are planned opportunities to learn or practice a skill within a routine.
  - Use the places and activities that occur in the student's school and home environment
  - Incorporate meaningful and logical outcomes
  - Target generalization

Activity - Task analyze one of your classroom or school routines.
Use Chaining Strategies to teach routines.

- **Forward Chaining**
  Student is taught the skill/s at the front of the chain first and proceeds backwards.

- **Backwards Chaining**
  Student is taught the skill at the end of the chain first and proceeds forward.

- **Global Chaining**
  Student taught skills all along the chain, with assistance and prompting given as needed.

**Benefits of Each Type**

- **Forward Chaining**
  - Success from the start
  - No frustration with the task

- **Backwards Chaining**
  - Opportunity to be patterned thru the whole tasks first
  - Closure/reinforcement more immediate

- **Global Chaining**
  - Student actively participates throughout task

**Activity** - Task analyze one of your classroom or school routines.

**Interrupted Behavior Chains (also called Joint Action Routines)**

- Recognize predictable routines - the same way of doing something each time
- When the student knows the routine, provide opportunities for them to initiate by interrupting, or "changing" the routine
  - Most important thing to do when interrupting the routine is to **WAIT**
  
The goal is not to frustrate the student!

This may not be an effective strategy with some students.

**Prompting Hierarchies**

- A systematic method of assisting students to learn and use new skills
  - A way to communicate the "level of support" a student needs to complete a task
  - Teachers, para-educators, family members, support staff to communicate about a student’s learning and level of independence
Standard Prompting Hierarchy

- Full physical prompt
- Partial physical prompt
- Modeling
- Gesture or Verbal prompt
- Independent

Activity - Task analyze one of your classroom or school routines

Use of Visual Support Strategies

- Visual Communication Strategies
  - Expressive (such as Picture Exchange Systems, Writing)
  - Receptive (such as visual schedules, visual closure and pacing systems, work systems)
- Must be individualized to match the learner’s skills and needs
  - Ability to use symbols
  - Ability to attend
  - Understanding of time and sequence

Visual schedules are receptive language supports.

Picture exchange systems (such as PECS*) are expressive language supports.

* Picture Exchange Communication System
Teacher consult: Visual Supports for Work Systems

Work systems are tools for learning that can lead to increasing levels of independence. The basic organizational routine of a simple work system includes:

- understanding the task to do
- when finished
- what next

These routines are visually represented (photos, pictures, icons, sight words) to the student and through the organization of the task/s.

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Diagnostic Center Southern California
Resources

- Assessment and Curriculum for Students with Moderate and Severe Disabilities (2001) by Diane Browder, Ph.D. (2001); Paul H. Brookes, publisher.
- Also, google "Diane Browder" for other interesting books and e-learning PowerPoints by Dr. Browder, a Distinguished Professor of Special Education at University of North Carolina, Chapel Hill.
- www.tash.org An international association for people with disabilities, family members and professionals.
- Adapted Core Curriculum Guidelines (2005) available at the Los Angeles County Office of Education. This document is a binder that aligns adaptive behavior skills with the CAPA standards.

Recognition and Thank You

- To the parents who gave permission to video their children
- To the teachers who permitted me to video them
- To the students who make us better teachers

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Learner Profiles

Students

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Relating Development to Common Interventions

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<th>PRE LOGICAL REASONERS</th>
<th>LOGICAL REASONERS</th>
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# Relating Development to Common Interventions

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<tr>
<td></td>
<td>Pre-Symbolic (under 24 months)</td>
<td>Pre-Academic (2-4 years)</td>
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## Relating Development to Common Behavior Strategies

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<td>Teach, “The rule is…”</td>
<td>Above cognition</td>
<td>X</td>
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<tr>
<td>Card pulling</td>
<td>Above cognition</td>
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<td>Above cognition</td>
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<tr>
<td>Points for specific behaviors earned for future reinforcer</td>
<td>Above cognition</td>
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<td>Above cognition most of the time; depends upon length of time to “cash out”</td>
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<tr>
<td>First/Then structuring</td>
<td>X (limited applicability; must represent with object)</td>
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<tr>
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initial version developed for: "How Children Think and Learn" Diana Browning Wright & Mary Owens, 1999
SELECTED BIBLIOGRAPHY & RESOURCES
Teaching Students with Moderate and Severe Disabilities


http://www.uncc.edu/aap
This is the website for the Charlotte Alternate Assessment Model Project. An excellent resource for teachers working with students with significant disabilities.

http://www.AAIDD.org
THE AMERICAN ASSOCIATION ON INTELLECTUAL AND DEVELOPMENTAL DISABILITIES (formally called The American Association for Mental Retardation) is the professional association run by and for professionals who support people with intellectual and developmental disabilities.

http://www.tash.org
TASH is an international membership association leading the way to inclusive communities through research, education, and advocacy.