FUNCTIONAL VISION AND LEARNING MEDIA

Keys to Accessing Information

VMI
• Learner’s with symbolic skills (preoperational and up)
  – 98% of professional development in sped
  – Target group for policies and strategies developed by federal and state education agencies

• Learner’s with pre-symbolic skills (sensorimotor)
  – .5% of professional development in sped
  – Included in policies developed with others in mind
  – Strategies esoteric, implemented sporadically, may have very limited research base
VMI

• Eligibility
  – Serious vision loss after correction
  – Visual impairment adversely affects educational performance
    • Cognitive level not used as differential
    • Etiology still an issue for some
Sensorimotor level VMI

- High proportion of VI caseloads
  - CVI leading cause of visual impairment in children
- Highest risk related to cognitive development
  - Sensory exploration is primary learning style
  - Access to sensory information is very limited (FVE/LMA)
    - Additional auditory/tactual impairments, SNP problems
- Without intervention, predictable cognitive delays in early development become permanent cognitive disabilities
Cognitive delays and early development

- Cognitive development is sensory dependent
  - Process
  - Experience
Cognitive Process

• Acquisition
  – Taking in sensory information (LMA)

• Storage
  – Memory (long term)

• Retrieval
  – Need to know (curiosity and motivation)

• Use
  – Application (action required)
Experience

• Quantity
  – Billions of sensory experiences are required for adequate cognitive development in 1st year of life

• Quality (LMA)
  – Sensory characteristics of media correspond to unique capacities of sensory neural processing system

• Result
  – Brain doubles in weight in 1st year of life
  – Development is life long, but pace slows
What do typical FVEs contain currently?

- Eye medical summary:
- Observation summary (near vision, distance vision)
- LMA
  - Channels: primary and secondary
  - Media
  - Functionally blind/braille
- Recommendations: clinical low vision, O&M
- Accommodations
- Eligibility
- Services: Time and type
What do you need to do differently?

Depends on what you are trying to do
Typical (2 hrs, 2/3 places)

- May suffice
  - To establish eligibility
    - Educational performance adversely affected
  - To establish primary and secondary learning channels
    - When vision is used rarely or globally and there are no additional sensory issues

- Not sufficient
  - For determining specific accommodations/modifications/supports
  - For determining relative strengths of all sensory channels for different tasks in different environments and best learning media related to each
Accommodations
modifications
supports

• IDEA 300.323(d)(2)(ii)
  – Agency must ensure availability to all team members
  – **Specific** accommodations, modifications, and supports that must be provided for the child in accordance with the IEP
Change: Eye medical

• Currently
  – Examination by generic specialist
  – Information about refractive error, visual acuities, visual fields, oculo-motor function, and accommodation left blank or noted “unable to test”
  – Aids not addressed (glasses)

• Need
  – Examination by specialist familiar with alternate procedures
  – Information provided in all standard areas
  – Prescriptive lenses addressed
If the generic eye specialist cannot do a complete exam covering the standard areas, a clinical low vision examination by a specialist with experience in the use of alternative methods is needed.
Change: Observation Procedure

- Currently
  - Based on about two hours of observation (new students)
  - Two or three environments observed
  - Procedure: teacher observation, brightly colored objects and lights

- Need
  - On-going observation
    - Different days, over time, fluctuations in performance due to health, seizure activity, etc.
  - All frequent environments
    - Environmental variables
  - Procedure based on use of structured observation tools
Change: LMA

• Currently
  – Primary secondary channels listed
    • Primary often auditory
  – Media grid filled in
    • Real objects, multisensory objects and toys, pictures, music, recorded stories
  – If functionally blind
    • Tactual learner/NA

• Need
  – Analysis of relative strengths of all channels
  – Media: Assessed appetites/aversions
  – Tactual learner: specify compensatory strategies (van Dijk, Nielsen, Chen & Downing)
Change: Recommendations

• Currently
  – Clinical low vision rarely
    • “student is non-reader and does not need optical devices”
  – O&M if ambulatory or capable of self-propelling wheelchair

• Need
  – Clinical frequently
    • Alternate procedures for acuities and fields
    • More attention to muscle function and accommodation
    • Areas not usually included: contrast sensitivity, color perception, etc.
  – O&M maybe not
    • Spatial relationships yes!
Change: Accommodations

• Currently
  – Items copied from menu in shell
    • Preferential seating
    • Present materials in preferred visual field
    • Use bright colored, light reflecting materials
    • Use hand-under-hand assistance
    • Provide multisensory input

• Need
  – More detail
    • Preferential seating becomes “Johnny sees people and objects best when they are on his left side”
  – Need tied to context
    • “In morning circle Johnny’s chair needs to be on right side of the circle”
Change: Eligibility/Service

• Currently
  – Usually yes: educational performance adversely affected
  – Consult
  – 2x’s monthly, 30 min.

• Need
  – Type: Collaborative
    • Includes hands on
      – Diagnostic teaching
      – Visual skill teaching
      – modeling
  – Amount: Based on needs of student and team
    • More intense when setting up program, cross training team
What tools are available?

- **Developmental perspective (D)**
  - Visual skills compared to normal development
  - Scales include mixture of visual attending skills, visual perceptual skills, cognitive skills, and motor skills

- **Ocular perspective (O)**
  - Blink, pupil reactions, acuities, fields, ocular-motor functioning, distance/near functioning

- **Neurological perspective (N)**
  - Color, movement, contrast, latency, complexity, etc.
New books full of information and tools

  • (D and O)
  • (N)
  • (O)
Assessments tools for sensorimotor level VMI

- **FVE**
  - ISAVE (D and O)
  - CVI Range (N)
  - CVI Resolution Chart (N)

- **LMA**
  - The Sensory Learning Kit (N)
  - Every Move Counts (N)
Unique contributions

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<tr>
<th>ISAVE</th>
<th>Positioning and visual functioning component for VMI with motor impairments</th>
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<tbody>
<tr>
<td>CVI Range</td>
<td>Ratings of characteristics to determine functional range</td>
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<td>CVI Resolution Chart</td>
<td>Intervention guide, 3 skill phases and 3 adaptation levels</td>
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<td>SLK</td>
<td>Analysis of relative strengths of sensory channels, appetites/aversions for learning media</td>
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Time efficient/effective reports

• FVE shells
  – Components
    • For students with ocular impairments
    • For students with cortical impairments

• LMA shells
  – Components for sensorimotor level VMI
FVE components: ocular

- Corn and Erin
  - Medical
  - Ophthalmological
  - Observation
    - Eye structure and reflexes (alignment, pupils reaction to light, blink, nystagmus)
    - Eye preference (best acuity)
    - Near vision
    - Distance vision
    - Area of vision (field)
    - Color and perception
  - Recommendations
  - Summary/eligibility

- Lueck
  - History
  - Evaluation procedure
  - Distance visual acuity
  - Visual fields
  - Contrast sensitivity
  - Color vision
  - Visual behaviors
  - Summary
  - Recommendations
Suggested change: ocular

• Medical
• Ophthalmological
  – Eye structure and reflexes (blink, pupil response, etc.)
• Procedure
  – What (tools), where, when (different times and days)
• Observation
  – Eye preference, distance, near, fields, color, perception
• Recommendations
• Accommodations/Modifications/Supports
• Eligibility
Components for CVI shell based on Roman-Lantzy material

- **Procedure**
  - CVI Range (for observation), CVI Resolution Chart (for interventions listed in A/M/S section)

- **Observation**
  - Color, movement, latency, visual fields, complexity, distance viewing, visual novelty, visual motor

- **Recommendations**
  - Phases for visual skill teaching

- **Accommodations/Modifications/Supports**
  - Environmental and media adaptations
Components for sensorimotor level LMA

- Relative strengths of sensory channels
  - Response levels: attention, exploration, function
- Positive media by channel
- Negative media by channel
  - Intensity rating related to reintroduction
- Response delays by channel
  - Pacing of instruction
- Tactual strategies
  - van Dijk, active learning, hand-under-hand, positioning for eye-hand coordination, etc.
Observation/Accommodation Guide

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<tr>
<th>Activity</th>
<th>EPA A</th>
<th>Media</th>
<th>Acc/Mod/Sup</th>
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Use in daily instruction

• Not a chance if your findings are vague
• Not a chance unless you are an active, frequently participating member of the team
• Best chance if
  – A/M/S are listed in ARD document (Guide?)
  – You help design instructional activities
  – You model VI strategies
  – You monitor, revise, and expand activities as needed