Agenda: Children with multiple disabilities and visual impairments
Jane N. Erin, Professor
The University of Arizona jerin@u.arizona.edu

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   Clinical and functional vision assessments
   Identifying learning media

3. Decision making with the educational team
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History and trends

Traditionally, services for students with visual impairments were limited to those who had the capacity for academic learning. Students with deafblindness were the only exception, with Perkins School for the Blind offering services for them beginning in the early-1800’s. Students who had more significant multiple disabilities were often institutionalized or remained at home to be cared for, without educational services. Until the Education for All Handicapped Children Act of 1975 in the U.S., children with multiple disabilities were rarely assessed for visual difficulties; it was assumed that they would not need services because they did not have the ability to learn to read or write.

Several factors in the late 1900’s resulted in increased attention to the needs of these students as visually impaired. Not only did schools for blind children assume new roles as academic learners transitioning to public schools, but conditions such as maternal rubella syndrome and increased survival rates among premature infants resulted in greater numbers of students with multiple disabilities. Teachers of students with visual impairments (TVIs) needed to acquire new skills to be effective in meeting the needs of students whose education emphasized functional skills and who may not be fully independent as adults (Sacks & Silberman, 1998).

Over the last 50 years, education of students with visual impairments has been expanded to meet the needs of a more diverse population. Many trends have supported their needs. Legal foundations have established their right to education, but along with this right has come a complex system of service decisions and efforts at educational equity. Inclusion with nondisabled peers has allowed access to community and social participation, but the challenges of individualization in large-group environments are not easily surmounted. The importance of active learning has been widely supported by innovators like Jan van Dijk and Lilli Nielsen, but implementing approaches and appropriate training about the importance of child initiative can be challenging in standard school settings. The emphasis on functional learning has acknowledged the importance of teaching skills that a learner will use to increase personal independence, but teaching these skills is still not considered by many schools to be a necessary part of their curriculum. Finally technology has provided a wealth of new opportunities for communication, entertainment, and initiative for students with complex disabilities; however, it has also increased the risk of making learning more complex and remote for students who need immediate ways to connect with others.

In working with students who have multiple and visual impairments, the family and the educational team members are the experts. Medical tests, medical and educational research, and theoretical foundations of teaching can provide a background of understanding of why a child functions
as he does, but only those who know the child best can assemble the pieces of the puzzle to promote learning. The process may be mysterious and enigmatic, but finding the solutions is mutually rewarding to students, families, and teachers.

**Assessment**

Assessments carried out by TVIs typically are intended to a.) determine eligibility for service, b.) to plan instruction, and c.) to evaluate the learner and the instructional process. TVIs and Orientation and Mobility Specialists are normally the primary assessors of functional vision and learning media, while they may participate at different levels in developmental and academic evaluation, depending on the setting, age of child, and team composition. The figure below provides a visual model of the assessment and instructional process, with an indication of what responsibilities are typically assumed personnel in visual impairment. For example, Bruce and Vargas (2012) describes a team collaboration in which early childhood teachers and TVIs participated together in assessing and the understanding of object permanence in a deafblind student, followed by an intervention program.

**FROM ASSESSMENT THROUGH IMPLEMENTATION**

Selection of intervention instruments and approaches should allow for the student to demonstrate a variety of behaviors to show that the child has achieved a milestone, options for adaptations for sensory impairments, flexible administration time, and the potential to be directly linked with student goals. Interviews, classroom observations, and review of records should be completed before planned activities are introduced. When eligibility for services is being evaluated, assessors will
consider whether the child’s level of attention, social interaction, and compliance with prompting might be related to visual differences.

The Functional Vision Assessment (FVA) of the child with multiple disabilities will yield richer information when assessment activities are preceded by parent and teacher interviews, when the assessment takes place over at least three sessions, at different times of day. In addition, varying the child’s position during activities will allow assessors to understand the effects of position on use of vision. Documentation of biobehavioral states can help to identify patterns of alertness that will affect when the child is best prepared to learn. Videotaping assessment activities will provide TVIs with the opportunity to review the child’s responses and consider them before they draw conclusions. FVAs with children with multiple disabilities may include activities that demonstrate:

- Reflexes, such as blink and pupillary response
- Formal and informal near/distance acuities (Grating acuities such as Teller cards, symbol identification such as Lea cards, informal acuities estimated by pre-measured objects presented at specified distances)
- Functional assessment of responses to variations in color, contrast, and lighting
- Assessment of visual fields (Variations of confrontation test, with glasses off, one eye at a time, as well as spontaneous behaviors such as turning toward a person quietly approaching)
- Assessment of oculomotor functions, such as fixation, convergence, accommodation, tracking, shift of gaze, and scanning (Presentation of objects and follow of moving objects; convergence test)
- Eye preference (Spontaneous placement of a tube on selected eye; head tilt for near and distance work)
- Other visual behaviors (Light gazing; preference for moving or stationary objects; social vision)

The assessment report should include a clear and concise summary of the assessor’s conclusions about vision, and it should list recommendations of one or two sentences each that can be applied by educators who are not familiar with visual impairment. If more extensive reference information is needed for implementation of goals, this can be provided as a separate document. Helpful resources include Langley (1998), Roman-Lantzy (2007), and Lueck (2004).

The Learning Media Assessment (LMA) is conducted to identify which senses play a part in a student’s learning. It should be conducted after the FVA. Initial information can be gathered through observing the child in three unstructured situations, interacting with materials and people. Often the Sensory Channels form from Koenig and Holbrook (1995) is used to gather data on the child’s responses to sensory information. In choosing media, the educational team should consider level of abstraction, familiarity, complexity of materials, frequency of use, preference, functionality, generalizability, and age appropriateness. Activities to determine media preferences include brief introduction of materials from each sensory channel and observation of how the child interacts with each; responses may indicate acceptance, interest, exploratory movements, rejection, avoidance, indifference, or distress. Smith's Sensory Learning Kit (2009) provides a protocol for conducting such an assessment.
Responses to pictures should be carefully assessed with a child who uses vision as a learning channel. Students with intellectual disabilities find pictures more meaningful if they resemble real and familiar objects, and therefore photographs of known objects may be most effective. However, students with low visual acuities may more easily recognize high contrast line drawings with some color and inner detail. The educational team will need to consider both the child’s ability to interpret abstract pictures and to recognize visual images in determining how pictures can best play a part in learning and information access.

As with the FVA, the LMA should include a brief concluding statement and recommendations that can be understood by families and team members. Recommendations for both FVA and LMA usually relate to adaptations to the learning environment, instructional plans that need to be implemented with the child, and additional referrals to specialists who can promote learning. With this information, the team can go forward with comprehensive information that will allow them to make long-term plans for the child’s education.

**Decision making**

Once assessment has been completed, the team meets to identify goals for the student and to plan for adaptations that are needed so that instruction can begin. Before instruction is implemented, the team will decide on the appropriate setting as well as how much service (if any) is needed from the teacher of students with visual impairments and other service providers.

**Goals** in visual impairment are most effective if they are closely linked with the student’s other educational goals. In selecting goals, team members should consider how many can be realistically achieved, how often the skill is needed, and what skills are most important to the family. Goals should be established before the educational setting and amount of service delivery are determined.

**Adaptations** should be provided only when a task cannot be independently accomplished without them. When possible, adaptations should be natural (e.g., placement of materials) rather than added (technological equipment or a built adaptation). In many cases, adaptations can be eliminated or support can be reduced after a skill is mastered, and team members should agree about when this will take place. Environmental adaptations can include monitoring the environment to reduce stimuli for students who are hyper-reactive, and to upgrade stimuli for hypo-reactive children who have minimal responses.

**Service and implementation** decisions are complex because children vary in their ability to respond to unfamiliar people, and the team must decide when the direct expertise of a TVI is needed and when that expertise can be used more efficiently in working with classroom staff members who see the child daily. Many TVI teams in the US use a formal scale to help them in making decisions about how much service children should receive, based on the type of visual impairment as well as other educational needs. Most commonly used is *Michigan’s Severity Rating Scales for Students with Visual Impairments*, but some other states or schools have developed their own. Several options are provided on the Texas School for the Blind and Visually Impaired website at [http://www.tsbvi.edu/resources/](http://www.tsbvi.edu/resources/). Professionals who choose to use an established scale should consider that there is no research evidence that students benefit from a specific frequency and amount of service, and these scales simply serve as a guide to ensure consistency of service with an educational region.
Factors that should be considered in making service decisions include the background and experience of the classroom team, the child’s response to unfamiliar people, the child’s ability to generalize skills across settings, and the child’s need for skills that can only be taught by a TVI. A full or part-time educational setting that is separate from age peers in the local schools might be considered for children who have behavioral or attention difficulties that affect learning or who require intensive practice on skills that are not addressed in the general class, which may include braille or daily living skills.

Models of service delivery, as described in the Michigan Severity Rating Scales, include indirect, flexible direct, and direct services. **Indirect services** are most appropriate for children whose program goals are well integrated into classroom activities and whose educational team is familiar with the needs of children with visual impairment. **Flexible direct services** can provide a balance of support for children who are new to a classroom and whose TVI can construct an instructional plan, demonstrate it to classroom staff, and then build it into the classroom routines. **Direct services** are appropriate for children who need a skill that can only be taught by a TVI or for children who have had a recent change in visual status such as a head injury. To ensure maximum opportunities for students to practice a skill across the classroom day, the TVI can use strategies such as co-teaching with the classroom teacher, shared videotaped assessments and routines with the team, and take photographs of key adaptations such as positioning or materials to remind the entire team of the procedure. As the ultimate teachers of their students, parents should be integrally involved in decisions about service delivery, and they should understand how the TVI will work with their child when the service is described as consulting or monitoring.

**Implementing Instruction**

Children with severe and multiple disabilities learn differently than others because lack of visual cues limits their awareness of time and sequence, causing them to overlook linked events such as someone putting on a hat before going outdoors. Students with physical disabilities may restrict their visual exploration to the immediate environment, ignoring moving objects or people moving toward and away from them. **Social interaction and communication** may be reduced because students do not see a communication partner or recognize approval from others, due to vision and cognitive differences. Finally, absence of information due to the inability to interpret symbolic language and visual symbols results in the child having a limited understanding of their world. These factors influence the importance of teaching through planned sequences that include defined sensory elements.

The elements of instruction for these children must be focused, regular, appropriate, natural, and consistent (Smith, 2012.) The building blocks of learning are routines, which at the beginning must have a well-defined beginning, a predictable sequence of interactions between partners, and a clear conclusion. Routines can be **social**, which emphasize shared experiences, or **functional**, which establish skills that are necessary in daily activities such as toothbrushing or washing dishes. Routines integrate concepts, which are ideas about the world, into schemas, which are patterns of concepts (Smith, 2012.) Although TVIs may only work with some children several times a week, they can still highlight and emphasize routines by wearing distinctive clothing, beginning and ending sessions with a familiar song, and using objects to signify activities. Bruce and Vargas (2013) published a detailed example of a very
basic routine for a four-year-old, which was implemented by the TVI, therapist, and classroom teacher to help the child understand object permanence.

To establish routines, team members should consider activities that a child does daily as well as materials and events that are highly motivating. Two programs published by the American Printing House for the Blind provide a wealth of activities for students who are learning through routines. The Sensory Learning Kit (SLK) (Smith, 2009) is intended for presymbolic learners, and the Symbols and Meaning Program (SAM) (Smith, 2012) is designed for learners who can use basic symbols to participate in games that are based on routines. In the manuals to these programs, Smith provides detailed guidelines for structuring learning; for example, while chatter may be appropriate in maintaining contact during an unstructured activity, speech during an instructional routine must be purposeful and offer consistent examples of meaning.

In teaching students with multiple and visual impairments, instructors should follow the principle of least prompting. Students should only be prompted after they have had an opportunity to respond, and the prompts should be as unobtrusive as possible. From least to most restrictive, options for prompting include the following.

- Natural cue (Least restrictive)
- Visual/tactile/auditory prompt
- Gestural
- Verbal (Direct and indirect)
- Modeling
- Physical prompting
- Physical guidance (Most restrictive)

The companion who can refrain from guiding a child’s hands, giving directives, and prompting too quickly is teaching the learner that she or he has control over how to move, act, and respond. For children who already have a limited understanding of the world, learning that others must control them can further limit their ability to express ideas, make choices, and take initiative.

**Essential skill areas**

This section includes descriptions of selected skill areas that important in the learning of almost every student with visual and multiple disabilities.

**Communication and literacy skills** vary among students with multiple and visual impairments, but the ability to express one’s own ideas and receive ideas from others is key to every other area of learning. Skills in this area vary because of neurological differences, lack of opportunities to communicate, limitations in nonverbal communication, and lack of communication referents. Presymbolic communicators may receive infrequent responses for behaviors that may have communicative intent. For these students, active learning approaches such as use of the Little Room (Nielsen) will reinforce the understanding that their own behaviors have results; this awareness can later be shaped into communication.

Tactile learners can become aware of the availability of partners and can learn from their partners’ movements through **mutual tactile attention** and **tactual modeling**. When acquiring new
skills, they benefit from hand-under-hand guidance or, when a more controlled demonstration is warranted, hand-over-hand guidance. These strategies are described in Chen and Downing (2006).

Students who have a growing understanding of the use of symbols will use a variety of systems. For the tactile learner, these begin with real objects and progress to partial objects, iconic symbols on background, abstract tactile symbols, and in some cases to braille. Visual learners make similar progress form real objects to photographs and pictures selected based on visual and conceptual qualities. During the period of symbol acquisition, use of sequence calendars with objects or symbols will help organize time and sequence. However, calendars by themselves are not communication systems; symbols must be selected, presented, and used in real contexts to build turn-taking and conversation.

Support is often needed when the child is acquiring conversational language: turn-taking activities, introduction of novel events into a routine, use of multiple symbols to encourage conversation, use of reference objects, and expansion of language associated with frequent experiences can encourage students to use language beyond the level of requesting and naming. Although many students with visual impairments use echolalic speech, professionals should appreciate that it is a bridge to more functional conversation and needs to be treated as an attempt at intentional communication.

Some students with multiple disabilities are able to learn to read braille if it is introduced in a meaningful and motivating context. The Individualized Meaning Centered Approach to Braille Literacy (I-M-ABLE curriculum) (Wormsley, 2011) has been successful in encouraging braille reading through the use of repeated experiences with student-selected words, motivating books based on experience, and infusion of braille into daily contexts.

Socialization and self-determination are important skills for students who will need to accept daily assistance for many of their daily tasks. The ability to make eye contact with or smile at another person, to demonstrate preferences, to refuse, and to discern the feelings of another person are essential skills in being a member of a family or community. Even students with subtle responses can learn that their choices are recognized (Clark & McDonnell, 2008). Classmates of a student with multiple disabilities can also learn the strategies that will support interaction, and their participation can be more effective than adult intervention. Students who have asocial behaviors may not tolerate large social events easily, but short periods of exposure after preparation through role playing and familiarization of anticipatory objects can increase toleration. Often, the inability to communicate can increase behavioral difficulties, and team members should be attentive to the antecedents of behavioral difficulties.

Use of vision can be facilitated and, in some cases improved, through management of the visual environment, teaching the use of visual skills, and teaching the use of vision in functional contexts (Bailey & Hall, 1990.) Students with multiple disabilities may not be able to control their positions to improve viewing. They may not want to look at the same things that interest others, understand the meaning of multisensory information, and enjoy the experience of using vision. Integrating skills identified in the FVA into functional tasks can improve efficiency. Goetz and Gee (1987) proposed a process for integration of visual skills:
   a. Determination of skill and context
   b. Development of instructional strategy, including the critical visual moment
   c. Selection of cues and prompts
   d. Implementation and monitoring of program
Activities of daily living For a child with multiple disabilities, management of daily living activities can be limited by physical strength, experience, awareness of visual information, motivation, and time constraints. Typically, these tasks are taught through discrepancy analysis, in which the child’s ability to carry out each step of a task is assessed and the steps that are not mastered are identified. Before instruction takes place, it is important to determine that the child has observed and/or participated in the entire task to the greatest extent possible; this determines that the child understands the process and outcome. The role of the itinerant or consulting teacher may emphasize necessary adaptations, including ways of stabilizing task materials, labeling items or areas, and finding substitutes for visual information. For many children, instruction will need to include stronger motivators to carry out a task that is not appealing because the purpose is not meaningful to the learner.

Orientation and Mobility A key question in many educational agencies is whether eligibility for O&M assumes the potential for mobility. In many areas, the O&M specialist role has expanded to address the needs of children with significant intellectual or physical disabilities. Although goals may not include independent route travel, adaptations in learning strategies and individualized technology can promote supervised initiatives of learners. Use of memory cues, overlearning, instruction in shorter increments, and use of routine-based instruction can enable students to enable familiar routes, and partial participation through route and directional signals is an option for many students who do not have a means of locomotion. In many instances, the role of the O&M specialist is to work with classroom staff members who may need feedback in how to include the student in travel experiences and orientation to new areas. Often, collaborative planning between the TVI and O&M specialist can result in ways to integrate student communication systems in the process of travel.

Recreation and Leisure For an activity to be recreational, it must be enjoyed by the student and, when possible, selected by him or her. For students who do not have symbolic language, a daily calendar can include a symbol for free time, and the student can learn to anticipate the opportunity to demonstrate preference for a specific activity. Preferences vary widely: some students enjoy the sensation of swinging and rapid movement, while others prefer quiet music and the chance to lie on a fuzzy carpet. Discovering and honoring those preferences is the beginning of facilitating recreational opportunities. Some students continue to prefer toys or activities that are characteristic of much younger children. Team members will need to develop creative options for transferring the preferred characteristic of the activity into a more age appropriate context when possible. For example, a child who enjoys light gazing may be engaged in age appropriate computer games with light effects, and a teenage girl who likes to carry a fuzzy stuffed toy may accept a fuzzy sweater or purse as a substitute when going out in public.

Some students enjoy sports activities, while others dislike them. Physical activities may be made more appealing by adding social or preferred sensory elements, but team members should keep in mind that these activities are not leisure activities unless they become preferred and selected. Lieberman and McCall (2003) investigated the range of recreational activities among a group of deafblind young people who had left school. They reported that swimming, swinging or rocking, and walking were the most common recreational activities. For most students, physical activities decreased after high school. Family activities had a strong influence on whether students continued to be active; most family reported that the Special Olympics were the main or only connection with community recreational activities for their
children. Clearly, expanding students’ knowledge of options for recreation and leisure time activities is vital in preparing them to choose personal use of time.

**Planning for Adulthood**

Although transition planning for young people with visual impairments often focuses on preparation for work, adult life encompasses much more than a vocation or career. Students with multiple disabilities may not be able to be competitively employed, but their education can include many experiences that will prepare them for adult living situations, daily occupations and work, and opportunities to enjoy the best possible quality of life. The TVI participates with an expanded team in planning for adult life, ensuring that the student’s needs as a person with visual impairment are considered during the process.

Living more independently as an adult may include options for living in a separate apartment or group residence, or it may mean taking an adult role while living with one’s own family. As much as possible, the individual should be encouraged to make choices about where and with whom to live. Transition-aged students need to gain skills for living comfortably with others, including respecting others’ preferences, describing one’s own needs related to visual impairments, and declining or requesting assistance.

Some young people with multiple disabilities will hold a job, with or without support, and the most effective preparation will be work experiences gained during high school. Their work activities can be encouraged through contacts with those who are doing jobs in the community, including those whose roles are similar to what students might fulfill. As with people whose only disabilities are visual impairments, those with multiple disabilities will also need to prepare

Others, who may have cognitive and physical disabilities, may not work at a full-time job, but will still need activities that will occupy their days productively. A balance of social and personal time, activities that maintain the home environment, outdoor experiences, community outings, and places to spend regular time away from the residence should be considered in finding ways in which the individuals can continue learning and enjoy variations in activities.

A national study of students who recently completed high school in the U.S has yielded some good news about changes in the experiences of students with visual impairments, including those with multiple disabilities (Ferrell, www.afb.org.) The National Longitudinal Transition Study compared a group of students who left school in 1990 with a group who finished after 2000. Among students with disabilities in addition to visual impairment, fewer who left school early and more who participated in community activities, held a job, and worked for pay. More innovative approaches to transitional experiences have become common, such as Project Focus at the University of Arizona, where students with cognitive disabilities attend selected university classes with nondisabled peers to improve social and functional skills. Planning for adult life will ensure successful outcomes when the team develops a common vision and goal that includes the preferences and abilities of the student, and when family and team members support a common vision with expectations of growth and independence.
References used in preparation of presentation
Children with multiple disabilities and visual impairments (Erin, 2013)

Books, videos, and general sources


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Journal articles


