Psycho-educational Assessments of Blind and Low Vision Children

Psycho-educational Assessments of Blind and Low Vision Children

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Part IV. Psycho-educational Assessment

Who is this book for?

This book is designed for psychologists with expertise in psycho-educational assessment of children and adolescents. In this book, you will learn to apply your skills to assessing blind and low vision students.

About this book

What do you need to know to provide an accurate and meaningful assessment for a child who is blind or has low vision? In this book, you will gain the background knowledge and the practical skills you need to assess blind and low-vision students. The book's first three parts provide foundational knowledge, including an overview of the visual system and visual impairments, the impacts on a child's development, and an introduction to educational services for visual impairment. The fourth and fifth parts discuss psycho-educational assessments in blind and low vision children, including working with the child's educational team, choosing and interpreting tests, making adaptations and modifications, setting up the assessment room, and interpreting the results. The sixth and final part is a special section for Teachers of the Visually Impaired (TVI) who collaborate with psychologists. In the appendix, you will find key resources for further information and suggestions on how to connect with others doing this specialized work.

After completing this book

The information in this book provides psychologists with the first step towards competency in assessing blind and low vision children. After reviewing this book, you are encouraged to seek case-based consultation in order to put your knowledge into practice.

Authorship

This book was jointly developed by Jennifer

Engle from the Vision Inter-professional Assessment Team at Sunny Hill Health Centre, Adam Wilton from the BC Provincial Resource Centre for the Visually Impaired, and May Nguyen from the California School for the Blind Assessment Center team. The authors are also grateful to Marnee Loftin, who contributed valuable material to the course that was the precursor to this book.

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Cover artwork

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Description: A hand, seen from the side, reading a book in braille.

PART I
THE VISUAL SYSTEM

1. Parts and Functions of the Eye

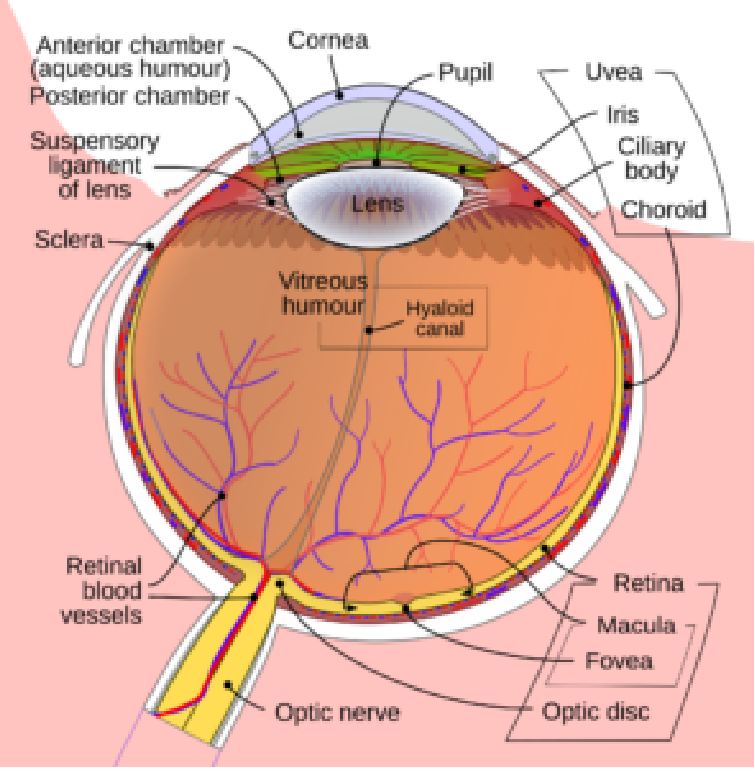
Key concepts

Before learning about blindness and low vision, practitioners need to know the basics of the visual system.

Light enters through the **cornea**, "the window that lets light into the eye" (Green, 2015, 3:35).

Light hits the convex **lens** that projects it onto the **retina**. Humans have two types of photoreceptors in the retina, rods and cones, which convert light into electrical signals and generate axon potentials. Rods are more light sensitive and register greyscale and general shape. Cones sit near the center of the retina and allow for detailed color vision. Near the center of the retina is the **fovea**. It has a thinner surface so that light can penetrate. The fovea is important for high acuity and color vision. The area right around the fovea is the **macula**. The macula is the area that degenerates in macular degeneration.

Information is then transmitted to the brain through the **optic nerve**.



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Visual system crash course

To learn more, please watch this 10-minute video, which provides an introduction to the visual system (Green, 2015).

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://pressbooks.bccampus.ca/vision/?p=45#oembed-1

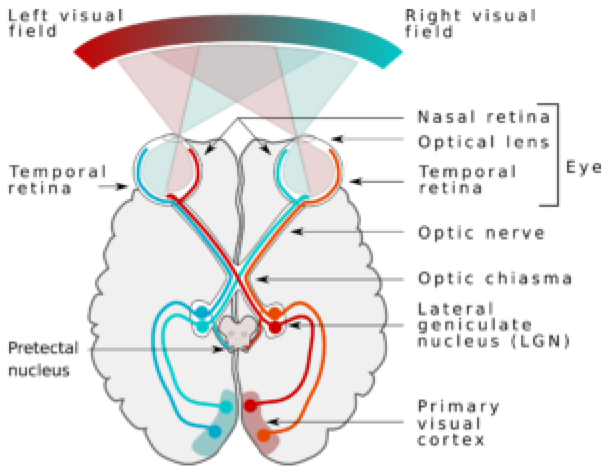
References

Green, H. [Crash Course]. (2015, May 11). *Vision: Crash course anatomy & physiology #18* [Video]. YouTube. https://youtu.be/o0DYP-u1rNM?si=GOOfo3_s_xVFwh5t

2. From the Eye to the Brain

Key concepts

After visual information leaves the eye through the optic nerve, part of the information crosses at the **optic chiasm** so that information from the left visual field of both eyes continues to the right hemisphere of the brain, and information from the right visual field of both eyes continues to the left hemisphere of the brain. At this point, the information is passed along the **optic tract** to the **lateral geniculate nuclei.** From there, the information follows the **optic radiations** to the **primary visual cortex in the occipital lobes** of the brain.



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This 26-minute video on the visual pathway provides an overview of the entire visual system, from the eye to the brain (Stansaas, 2018).

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References

Stansaas, S. [Moran CORE]. (2018, February 8). *The visual pathway: Neuroanatomy video lab – Brain dissections* [Video]. YouTube. https://youtu.be/Hn2tF-puPQ4?si=Pl3lPvNk26FZLTuG

3. Check Your Knowledge

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PART II

CONDITIONS AFFECTING THE VISUAL SYSTEM

4. Terminology

Functionally blind

- Functionally blind means no usable vision. The learner may have some light perception with or without projection, meaning they can determine the direction of the light source. It is highly unlikely that the visual channel will be a viable means for the learner to gather information.
- Functionally blind students rely primarily on senses other than vision as channels for learning (2 EDC §56350, 2018). Specialized assessments from the TVI provide information on how students use their senses for learning.

Low vision

- Low vision is a permanent and significant loss of visual function that interferes with daily activities. Low vision may be due to reduced visual acuity, reduced visual field, or both. Low vision cannot be corrected with conventional glasses, contact lenses, surgery, or medication (Turbert & Gudgel, 2023). Per Massof and Lidoff, as cited by the American Foundation for the Blind (n.d.), low vision "is better defined in terms of function, rather than [numerical] test results" (A Functional Definition of Low Vision section).

- According to the International Statistical Classification of Diseases and Related Health Problems, 11th Edition (ICD-11), the visual acuity threshold (see below) for low vision (or "vision impairment") is acuity that is equal to or below 20/70 (World Health Organization, 2019). Mathematically, this means that a learner would have a 3.5 times difference or worse from unimpaired visual acuity (i.e., 20/20) for a medical classification of vision impairment.
- Most low vision students use vision as the primary sensory channel for learning but may also benefit from braille instruction.

Using both print and braille as learning media is commonly referred to as "dual media." A student's most efficient learning media are determined by the Learning Media Assessment (LMA), a specialized assessment process that is implemented by the TVI.

Legally blind

- Legal blindness is defined as visual acuity of 20/200 or less in the better eye with the best correction or a field of vision no greater than 20 degrees. This definition is the same in Canada and the United States (20 CFR § 404.1581, 1983).
- Legal blindness is more of a legal term than a functional or educational term that may be used by government or health organizations for eligibility for disability benefits, rehabilitation, vocational training, or other programs.

Vision characteristics

- Color perception is the ability to perceive color accurately.
- Visual acuity is the clarity or sharpness of vision. Typical visual acuity is measured as 20/20. Someone with 20/20 vision can see clearly at 20 feet what should normally be seen at that distance. If someone has 20/200 vision, they must be as close as 20 feet to see what a person with 20/20 vision can see at 200 feet (10x closer).
- Vision may be missing in part of the visual field. The visual field is the entire area that can be seen when the eyes are focused on a single point. More information can be found in the chapter on Visual Field Loss.
- Contrast sensitivity is the ability to distinguish shades of a color from its foreground to its background.
- Stereopsis is the ability to use both eyes together (Dhar et al., 2023). From a central point of fixation, the visual system processes two different images. The ability to integrate these inputs so that one image is perceived results in depth

perception.

Ocular vs. cortical/cerebral visual impairment (CVI)

- Ocular visual impairment is an uncorrectable disruption to visual sensory input caused by some injury or insult to one or more parts of the eye's anatomy.
- Neurological visual impairment is the most common cause of visual impairment in children in the economically developed world (e.g., 40-48% of visually impaired children in the UK; Gorrie et al., 2019). It is also called cortical or cerebral visual impairment (CVI). CVI results from damage to the brain's visual system structures that are not directly involved in sensation (i.e., the eye). Instead, CVI results from damage to the neurological structures responsible for encoding, transmitting, decoding, and interpreting visual information in the brain (Martín et al., 2016). It is most common in children with neurological injury or syndromes.

More information can be found in the chapter on CVI.

- A child may have both ocular and cortical/ cerebral VI.

Braille

- Unified English Braille (UEB) is the standard braille used across the English-speaking world, including both Canada and the United States.
- Braille can be written symbol by symbol (alphabetic or uncontracted) or used with a system of contractions (i.e., one symbol for common words or word endings). Thus, UEB has alphabetic, logographic, and syllabic components as a writing system.
    - Traditionally, braille has been referred to as a "code," but recent scholarship more accurately refers to braille as a tactile orthographic (or writing) system (Englebretson et al., 2024).
- In 2013, 137 braille writing systems were in place around the world, representing 133

languages. See the *World Braille Usage, Third Edition* (Perkins et al., 2013) for more information.

- It is generally estimated that 10% of school-aged youth with visual impairment read braille fluently according to US data (National Federation of the Blind, 2009, p. 8).
    - This figure should interpreted with caution as estimates of braille literacy rates are frequently based on extrapolations from national eligibility data and not on a count of students using braille as a learning medium (Sheffield et al., 2022).

More than meets the eye

For more information about these terms and a general introduction to working with blind and low vision students, please watch this 42-minute video from the California School for the Blind (McKerracher & Green, 2020).

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References

American Foundation for the Blind. (n.d.). *Low vision and legal blindness terms and descriptions*. https://www.afb.org/blindness-and-low-vision/eye-conditions/low-vision-and-legal-blindness-terms-and-descriptions

Dhar, S. K., Banerjee, S., Al-Zubidi, N., Vannadil, H., Mortensen, P. W., & Albreiki, D. (Ed.). (2023). *Stereopsis and tests for stereopsis*. EyeWiki. https://eyewiki.aao.org/Stereopsis_and_Tests_for_Stereopsis#Definition

Englebretson, R., Holbrook, M. C., Treiman, R., & Fischer-Baum, S. (2024). The primacy of morphology in English Braille spelling: An analysis of bridging contractions. *Morphology*, *34*(2), 125-150. https://doi.org/10.1007/s11525-023-09413-8

Gorrie, F., Goodall, K., Rush, R., & Ravenscroft, J. (2019). Towards population screening for Cerebral Visual Impairment: Validity of the Five Questions and the CVI Questionnaire. *PLoS ONE, 14*(3): e0214290. https://doi.org/10.1371/journal.pone.0214290

Individualized Education Program for Visually Impaired Pupils, 2 EDC §56350. (2018). https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=EDC&division=4.&title=2.&part=30.&chapter=4.&article=3.5

Martín, M. B., Santos-Lozano, A., Martín-Hernández, J., López-Miguel, A., Maldonado, M., Baladrón, C., Bauer, C. M., & Merabet, L. B. (2016). Cerebral versus ocular visual impairment: The impact on developmental neuroplasticity. *Frontiers in Psychology*, *7*, 1958. https://doi.org/10.3389/fpsyg.2016.01958

McKerracher, A., & Green, M. [California School for the Blind]. (2020, January 13). *More than* *meets the eye* [Video]. YouTube. https://youtu.be/2Jz4r8fdj_k

Meaning of blindness as defined in the law, 20 CFR § 404.1581 (1983). https://www.ssa.gov/OP_Home/cfr20/404/404-1581.htm

National Federation of the Blind. (2009). *The braille literacy crisis in America: Facing the truth, reversing the trend, empowering the blind*. https://nfb.org/images/nfb/documents/pdf/braille_literacy_report_web.pdf

Perkins, International Council on English Braille, & National Library Services for the Blind and Physically Handicapped, Library of Congress. (2013). *World braille usage* (3rd ed.). https://www.perkins.org/wp-content/uploads/2021/07/world-braille-usage-third-edition.pdf

Sheffield, R. M., D'Andrea, F. M., Morash, V., & Chatfield, S. (2022). How many Braille readers? Policy, politics, and perception. *Journal of Visual Impairment & Blindness*, *116*(1), 14-25. https://doi.org/10.1177/0145482X211071125

Turbert, D., & Gudgel, D. (2023). *What is low vision*? American Academy of Opthalmology. https://www.aao.org/eye-health/diseases/low-vision

World Health Organization. (2019). 9D90 Vision impairment including blindness. In *International statistical classification of diseases and related health problems* (11th ed.). https://icd.who.int/browse/2024-01/mms/en#1103667651

5. Visual Conditions

Classifying visual conditions

Ocular vs. neurological

The condition may be due to a problem with the eye (ocular) or the brain (neurological). Individuals can have a condition or conditions which impact both the eye and the brain.

Stable vs. progressive in nature

Some conditions are stable or even can improve with time (e.g., cerebral visual impairments), whereas others are associated with a decline in visual function (e.g., Stargardt's disease). While progressive visual impairment will present uniquely for each individual, understanding the typical prognosis and timeline can assist in making intervention recommendations.

Congenital vs. adventitious

Some visual conditions are present from birth (congenital), whereas others occur later in life (adventitious). The timing of the visual impairment will impact the student's experiences, concept development, and visual-spatial skill development.

Common visual conditions in childhood

To learn more about a specific visual condition and its potential impact on a student's education, check out the following resources:

- The Provincial Resource Centre for the Visually Impaired (PRCVI, n.d.) provides a list of visual conditions and their

educational impact.
- The California School for the Blind (n.d.) lists causes of vision loss and suggestions for support.

Significant differences exist in the prevalence and causes of blindness and low vision worldwide. The three most common causes of visual impairment in children in the United States are as follows (Kong et al., 2012; Steinkuller et al., 1999):

- Cortical/Cerebral visual impairment (CVI) is a condition where there is damage to the visual cortex of the brain. The most common cause of CVI is inadequate blood or oxygen supply to an infant’s brain near the time of birth. A majority of children with CVI have additional neurological problems, such as seizures or cerebral palsy. CVI is covered in more depth in the next section.
- Retinopathy of prematurity (ROP) is an eye disorder associated with being born premature and the application of oxygen therapy when in intensive care. It is caused

by abnormal blood vessel growth that occurs in premature infants, which can lead to scarring and retinal detachment (PRCVI, n.d.).
- Optic Nerve Hypoplasia (Scott, 2022) is a stable, congenital condition in which the optic nerves are too small. It can affect one or both eyes and can lead to decreased acuity. ONH can also be associated with endocrine dysfunction that may result in hormone deficiencies.

References

California School for the Blind. (n.d.). *Causes of vision loss in children*. https://www.csb-cde.ca.gov/resources/causesvl/index.aspx

Kong, L., Fry, M., Al-Samarraie, M., Gilbert, C., & Steinkuller, P. G. (2012). An update on progress and the changing epidemiology of causes of childhood blindness worldwide. *Journal of the American Association for Pediatric Ophthalmology and Strabismus*, *16*(6), 501–507. https://doi.org/10.1016/j.jaapos.2012.09.004

Scott, C. (2022, January). *Optic nerve hypoplasia*. American Association for Pediatric Ophthalmology and Strabismus. https://aapos.org/glossary/optic-nerve-hypoplasia

Steinkuller, P. G., Du, L., Gilbert, C., Foster, A., Collins, M. L., & Coats, D. K. (1999). Childhood blindness. *Journal of the American Association for Pediatric Ophthalmology and Strabismus*, *3*(1), 26–32. https://doi.org/10.1016/s1091-8531(99)70091-1

Provincial Resource Centre for the Visually Impaired. (n.d.). *Visual conditions*. https://www.prcvi.org/resources/resources-for-teachers/visual-conditions/

6. Cortical/ Cerebral Visual Impairment

What is cortical/cerebral visual impairment (CVI)?

Cortical/cerebral visual impairment is caused by neurological damage or trauma to the brain. CVI can occur on its own or in combination with an ocular visual impairment. CVI is one of the most common causes of visual impairment in children in developed countries. Students with CVI may show various differences in how they use their vision, including difficulty with visual attention, difficulty integrating vision with movement, sensitivity to visual clutter, and fluctuation of their vision over time.

Pennsylvania Training & Technical Assistance Network (PaTTAN) CVI course webinars (CVI Scotland, n.d.)

Please take time to watch the following two webinars.

- Who are the children with CVI? (Lueck & Hartmann, 2020b) is a 42-minute recorded webinar that reviews “the unique ways that CVI manifests in children [and] discuss[es] what is CVI; who are the children who have CVI; how are these children identified in the schools; and reasons underlying misidentification” (YouTube description box).
- Students with CVI: The CVI Profile (Lueck & Hartmann, 2020a) is a 53-minute recorded webinar that looks “at the varied manifestations of CVI for children of all ages including those with additional disabilities with a coordinated approach that leads to individualized CVI Profiles” (YouTube description box).

For more information, please see the [CVI Self-Paced Short Course](https://classroom.google.com/c/NTI4ODY2NjIyNjgz?cjc=265c263) (registration with a Google account is required) (Herlich & Nguyen, 2021).

References

CVI Scotland. (n.d.). *PaTTAN CVI course, topic 1 – Identifying and working with children with CVI: What I need to know.* https://cviscotland.org/mem_portal.php?article=236

Herlich, S., & Nguyen, M. (2021). *CVI self-paced short course* [Online course]. Google Classroom. https://classroom.google.com/c/NTI4ODY2NjIyNjgz?cjc=265c263

Lueck, A., & Hartmann, E. [PaTTAN]. (2020a, September 2). *Students with CVI: The CVI Profile* [Video]. YouTube. https://www.youtube.com/watch?v=KNJ7qHz09KE

Lueck, A., & Hartmann, E. [PaTTAN]. (2020b, September 2). *Who are the children with*

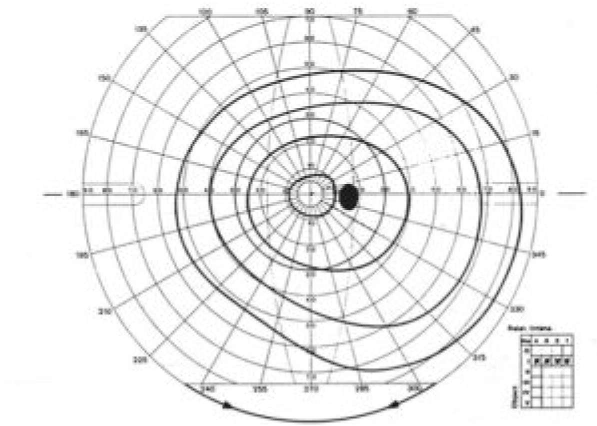
CVI? [Video]. YouTube. https://youtu.be/ODJGlFPmH14?si=bTy3Ldx5H5BEEMMd

7. Visual Field Loss

What are visual fields?

Visual fields are the whole area seen through the eyes and described as if you were standing behind the person. A typical visual field (Spector, 1990) has the following parameters:

- 90 degrees temporally from a central fixation point
- 50 degrees superiorly and nasally (upper fields)
- 60 degrees inferiorly and nasally (lower fields)



Normal right visual field. Pignol23, CC BY 3.0, via Wikimedia Commons

Causes of visual field loss

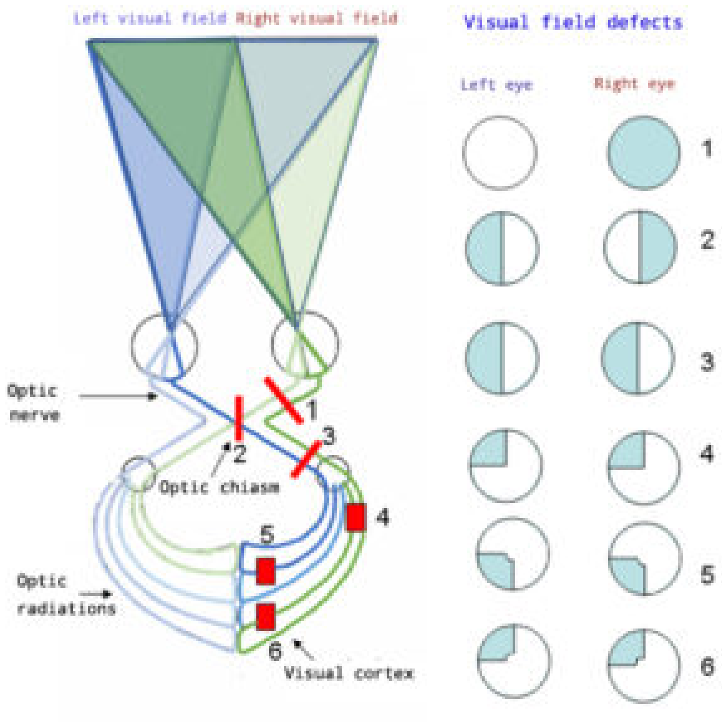
Loss of vision in part of the field of vision may be due to traumatic brain injury, tumor, surgery, or infarct in the posterior cerebral artery. Loss of part of the field of vision can also occur due to a genetic condition, glaucoma, or toxic exposures.

Types of visual field loss

Field loss can affect different parts of the field of vision depending on what part of the system is affected. Visual field loss can be central (e.g., in macular degeneration) or peripheral (e.g., "tunnel vision"), impact a quadrant (quadrantanopia), or affect half (hemianopia) of the visual fields. Visual field loss can also be limited to the nasal half (towards the nose) or the temporal half (towards the temples) of the field of vision.

National Eye Institute, National Institutes of Health, Public domain, via Wikimedia Commons. Example of tunnel (peripheral vision loss)

Homonymous hemianopia is when the same half of the visual field is affected in both eyes. This occurs due to damage to the visual pathways, between the optic chiasm and the visual cortex, on the opposite side of the vision loss. Many children with homonymous hemianopia will also have weakness or paralysis on the same side of the body as the vision loss.



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1. Complete loss of vision right eye
2. Bitemporal hemianopia
3. Left homonymous hemianopsia
4. Upper left quadrantanopia

5&6. Quadrantanopia with macular sparing

The picture below shows what someone with a complete right homonymous hemianopia would see:

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Visual field loss and reading

Central vision is essential for reading as there is a high density of cones in the center (fovea) of the retina. This high acuity vision allows the reader to clearly see about four to five letters at a time in optimally sharp focus. The parafovea, the around the fovea, gives the reader a “big picture” of the scene, allowing a preview of upcoming words. When reading text from left to right, the “perceptual span” (or area viewable with parafoveal vision) – extends about three to four letters or spaces to the left and up to 15 letters or spaces to the right. This span allows the reader to plan where to fixate the eyes next along the line of text.

With longer words, the reader with homonymous hemianopia can only see part of the word, which can lead to guessing the beginning or ending of a word. In addition, with the loss of the right visual field, the reader misses out on having a large perceptual span to the right and must spend extra time scanning text to find the next fixation spot. Reading with right-sided homonymous hemianopia is described as "reading into nothingness." Left-sided homonymous hemianopia can lead to difficulty keeping place between lines (Lawrence et al., 2018).

To learn more about visual field loss and its impact on reading, please see *Vision After Hemispherectomy, TPO Disconnection, and Occipital Lobectomy: An Introductory Guide* (Lawrence et al., 2018).

References

Lawrence, L., Jones, M., & Vernick, A. (2018). *Vision after hemispherectomy, TPO disconnection, and occipital lobectomy: An introductory guide*. The Brain Recovery Project: Childhood Epilepsy Surgery Foundation. https://epilepsysurgeryalliance.org/wp-content/uploads/2017/06/FINAL-Vision-After-Hemispherectomy-TPO-Disconnection-and-Occipital-Lobectomy.pdf

Spector, R. H. (1990). Visual fields. In H. K. Walker, W. D. Hall, & J. W. Hurst (Eds), *Clinical methods: The history, physical, and laboratory examinations* (3rd ed., Figure 116.1). https://www.ncbi.nlm.nih.gov/books/NBK220/figure/A3545/?report=objectonly

8. Check Your Knowledge

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PART III

DEVELOPMENT AND EDUCATION OF BLIND AND LOW VISION CHILDREN

It is important to understand the factors that impact development in blind and low vision children. In comparison to their sighted peers, little formal research has occurred to explore the unique developmental patterns of students with visual impairments. A lot of information is based upon anecdotal data as well as observation of blind and low vision students.

There are differences in development for blind and low vision students when compared to their sighted peers. The differences will depend upon several factors, including:

- Degree of vision loss

- Age of onset
- Early intervention
- Opportunities for experiential learning
- Complexity of co-occurring medical/ neurological issues

In the next few chapters, we will discuss the impact of blindness and low vision on various areas of development.

9. Language and Social Development

Language development

Although there is some evidence for communication difficulties in blind and low vision children, research is limited (Mosca et al., 2015). Most information is based on experience in clinical practice or case studies rather than empirical evidence.

Language development in blind and low vision children has some differences compared to sighted peers. These differences begin at an early age. Babbling emerges at about the same time as sighted peers but may be less in quantity (Lewis, 1975, as cited in Brouwer & Gordon-Pershey, 2021). Babbling to a caregiver is an important part of establishing early attachment. The lack of response to a parent's interactions may be a stress to a parent of a child who is blind or who has severely low vision. Intervention programs continue to stress the importance of interactions despite the lack of response. There is also evidence for potential delayed speech sound development given the importance of observing lip movements to the perception of speech sounds (Perez-Pereira & Conti-Ramsden, 2019). In spite of the early differences, blind and low vision children tend to begin to speak at approximately the same age as their peers (summarized in Webster & Roe, 2002).

As they develop, many people have noted ongoing differences in the language of blind and low vision children. Some note a more frequent misuse of pronouns, and echolalic language is also more common (reviewed in Ludwig et al., 2022). All children have periods of echolalic language as they develop language. However, periods of echolalia tend to last longer and are often more persistent for a blind or low vision child. The echolalia may become more meaningful as the child becomes older. For example, a child may learn to say “Johnny, do you want milk?” to ask for milk. Echolalic language may also function as a means for the blind or low vision child to ascertain who is nearby by eliciting a response from the receiver (Peters, 1994; Urwin, 1983). In this way, echolalic language may represent an early strategy for establishing and maintaining social interaction.

Another difference is the frequent use of words for which the blind and low vision youth have little or no understanding. An adult listening to the large vocabulary of a student with limited or no vision may overestimate the child's abilities. It is always important to check for understanding of words that are being used.

Social use of language and social skills

So much of communication is visual – blind and low vision children may be less able to observe the social behavior of others. Without the ability to use vision to gauge the interest of others in a conversation, blind and low vision children are deprived of a critical source of feedback. As a result, they may need help initiating and maintaining the conversational flow. This may include direct instruction in strategies for determining a listener's engagement level through their responses and vocal intonation. There is some research evidence that parent-reported pragmatic language skills are weaker in school-aged blind and low vision children with average verbal intelligence (Tadić et al., 2010) despite core language skills being stronger than their sighted peers.

Research has shown that adolescents with visual impairments are more likely to engage in passive (e.g., online communication) as opposed to active forms of social engagement and that the degree of vision impairment is not predictive of the degree of social isolation experienced by a student (Gold et al., 2010). These language issues can contribute to the social isolation of blind and low vision children and may contribute to the students being overly reliant upon adults in their environment for both support and socialization.

Blind and low vision children require that the social world be made accessible through the direct instruction of the knowledge and skills for social interaction and belonging (Sacks, 2014). Social interaction skills need to be taught to all blind and low vision children, regardless of the extent of their visual impairment, as this will impact their functioning in various areas (Botsford, 2013). For example, seeking out meaningful and engaging social interactions with peers can be an important motivator for blind and low vision children to elaborate their skills for safer, independent, and more effective travel (i.e., Orientation and Mobility skills).

Examples of social interaction skills

- Joining in a playgroup and initiating conversations.
- Maintaining an appropriate social distance and understanding how this can vary between familiar and unfamiliar individuals.
- Sharing toys, games, and activities with others. Allowing others to select a play

activity.
- Having reciprocal interactions and conversations, not dominating a conversation or perseverating on personal preferred topics.
- Complimenting and encouraging the efforts of others. Understanding the concept of “being a good sport.”
- Recognizing and interpreting sarcasm and other forms of non-literal language.
- Engaging in self-advocacy.

References

Botsford, K. D. (2013). Social skills for youths with visual impairments: A meta-analysis. *Journal of Visual Impairment & Blindness, 107*(6), 497-508. https://doi.org/10.1177/0145482X1310700610

Brouwer, K. & Gordon-Pershey, M. (2021). The relationship between speech perception and speech production in children with visual impairment. *Journal of Visual Impairment &*

Blindness, *115*(3), 251–257. https://doi.org/10.1177/0145482X211018876

Gold, D., Shaw, A., & Wolffe, K. (2010). The social lives of Canadian youths with visual impairments. *Journal of Visual Impairment & Blindness, 104*(7), 431-443. https://doi.org/10.1177/0145482X1010400706

Ludwig, N. N., Jashar, D. T., Sheperd, K., Pineda, J. L., Previ, D., Reesman, J., Holingue, C., & Gerner, G. J. (2022). Considerations for the identification of autism spectrum disorder in children with vision or hearing impairment: A critical review of the literature and recommendations for practice. *The Clinical Neuropsychologist*, *36*(5), 1049–1068. https://doi.org/10.1080/13854046.2021.2002933

Mosca, R., Kritzinger, A., & van der Linde, J. (2015). Language and communication development in preschool children with visual impairment: A systematic review. *The South African Journal of Communication Disorders*, *62*(1), e1–e10. https://doi.org/10.4102/sajcd.v62i1.119

Pereira, M. P., & Conti-Ramsden, G. (2019). *Language development and social interaction in blind children*. Routledge.

Peters, A.M. (1994). The interdependence of social, cognitive, and linguistic development: Evidence from a visually impaired child. In H. Tager-Flusberg (Ed.), *Constraints on language acquisition: Studies of atypical children* (pp. 195–219). Erlbaum.

Sacks, S. Z. (2014). Social interaction. In C. B. Allman & S. Lewis (eds.) *ECC Essentials: Teaching the expanded core curriculum to students with visual impairments* (pp. 324-368). AFB Press. https://www.aph.org/product/ecc-essentials-teaching-the-expanded-core-curriculum-to-students-with-visual-impairments/

Tadić, V., Pring, L., & Dale, N. (2010). Are language and social communication intact in children with congenital visual impairment at school age? *Journal of Child Psychology and Psychiatry*, *51*(6), 696–705. https://doi.org/10.1111/j.1469-7610.2009.02200.x

Urwin, C. (1983). Dialogue and cognitive functioning in the early language development of three blind children. In A.E. Mills (Ed.), *Language acquisition in the blind child: Normal and deficient* (pp. 142–161). College-Hill Press.

Webster, A., & Roe, J. (2002). *Children with visual impairments*. Taylor and Francis. https://doi.org/10.4324/9780203440971

10. Cognitive and Concept Development

Introduction

Evaluation of verbal intellectual functioning typically involves the measurement of acquired facts and knowledge (crystallized intelligence). Tests of verbal reasoning and general knowledge assume that blind and low vision students have had access to the same learning opportunities as their sighted peers, which is not always the case. The assessing psychologist must be aware of these potential differences in opportunities and exposures.

Concept development

A concept is something that is abstract. To properly understand a concept requires a rich and extensive experience.

Vision is a major source by which we receive information about our world. With respect to concept development, vision plays an organizing role by providing a framework within which the child associates multisensory input (touch, hearing, smell) with a unified concept (Hollins, 2022). With reduced or no opportunity to engage the visual channel as an integrative modality, blind and low vision children require more purposeful intervention and support to acquire and elaborate meaningful concepts. Blind and low vision children acquire new information through the process of direct instruction as well as structured hands-on experiences (Loftin, 2022b). This explicit learning process may take time and contribute to concepts being acquired slowly. Without opportunities for direct experiences, the child may have an incomplete understanding of the concept, such as overly focusing on certain details.

Details vs. general concepts

Children who are either born with no vision or experience vision loss at a younger age are likely to have the most difficulty with concept development. Without strong and early intervention programs, they are likely to develop splintered concepts. They may focus on isolated aspects to develop broader concepts. It is often difficult for them to master broad concepts instead of a series of fragmented details. For example, they may see an island as a place with palm trees and surfboards but miss that it is land surrounded by water. It is particularly difficult to remediate these gaps in knowledge. Unless multiple opportunities are provided for experiential learning, blind and low vision children tend to develop a fragmented series of concepts that make abstract reasoning difficult.

Memorization vs. understanding

The other area that impacts the measurement of cognitive development is the tendency for blind and low vision children to use "verbalisms" or words that they use without an adequate base of knowledge. While educators and families of blind children often note this tendency, some research indicates verbalisms are used by sighted and blind children and may be viewed as an adaptive linguistic strategy for the blind child in a visually dominant social environment (Kastrup & Valente, 2018; Rosel et al., 2005). Whether verbalisms are viewed as a difference or social adaptation, this tendency may impact the development of abstract concepts if opportunities for direct experience are not provided. When listening to a young, verbose child, knowledge may be assumed where little exists.

As with vocabularies, blind and low vision students often present with memorized facts but little understanding of a concept. Difficulties are apparent when asked to generalize these concepts to new situations that require manipulation of information. For example, a student may be able to recite the capitals of all of the states or provinces; however, the same student cannot tell you the characteristics of the capitals, why states or provinces do not share capitals, or other information about capitals. Frequent checks for understanding will often reveal the difference between mastery and memorization.

Concepts directly dependent on vision

Challenges with understanding scale, depth, shadow, perspective, and space may be present, especially if the etiology of blindness or low vision is congenital or during the early developmental period.

Summary of possible difficulties with cognitive development in blind and low vision students

While not all blind and low vision children experience the following, examiners must be aware of these potential challenges (Loftin, 2022a).

- Tendency to have a fragmented understanding of concepts.
- Challenges in applying knowledge to new situations, or conversely, troubles due to overgeneralization.
- Difficulty in understanding concepts without direct experiences.
- Reliance on rote memory.
- Struggles in focusing on multiple aspects of a concept.
- Frequently appear as more cognitively able simply because of large vocabularies without corresponding meaning.

For more information on concept development in blind and low vision students, you may want to read the document Concept development with children with a (severe) visual impairment (de Kleijn & van den Bos, 2018).

References

de Kleijn, I. U., & van den Bos, F. (2018). *Concept development with children with a (severe) visual impairment*. Visio. https://www.visio.org/visio.org/media/Visio/Downloads/KEI/Leaflet_Concept_Development_ENGLISH.pdf

Hollins, M. (2022). *Understanding blindness: An integrative approach*. Routledge.

Kastrup, V., & Valente, D. (2018). How to make the body speak? Visual disability, verbalism and embodied Speech. *Psicologia: Ciência e Profissão*, *38*(3), 572–583. https://doi.org/10.1590/1982-3703000052018

Loftin, M. (2022a, January 20). *Best practices for cognitive evaluation of students with VI*

[Slides]. APH. https://www.aph.org/app/uploads/2022/01/Best-Practices-for-Cognitive-Evaluation-of-Students-with-VI.pdf

Loftin, M. (2022b). *Making evaluation meaningful: Determining additional eligibilities and appropriate instructional strategies and visual impairment* (2nd ed.). Texas School for the Blind and Visually Impaired. https://www.tsbvi.edu/product/making-evaluations-meaningful

Rosel, J., Caballer, A., Jara, P., & Oliver, J. C. (2005). Verbalism in the narrative language of children who are blind and sighted. *Journal of Visual Impairment & Blindness*, *99*(7), 413-425. https://doi.org/10.1177/0145482X0509900704

11. Mental Health and Emotional Development

Increased Risk

Blind and low vision children are at increased risk of experiencing mental health challenges when compared with their sighted peers (Augestad, 2017a; Kuld et al., 2021; Sims et al., 2021). Their mental health can be affected by concerns about their visual condition or its progression, social isolation, stress or trauma from medical procedures, reduced mobility, and experiences of stigma or discrimination, whether real or perceived. Routine mental health screening and monitoring, particularly for anxiety and depression, is recommended for youth and adults (Demmin & Silverstein, 2020; Lundeen et al., 2022; Robertson et al., 2021). Boagey and colleagues (2022) emphasized that “any mention of suicidal ideation should be taken very seriously, as sight loss has been linked to an increased risk of suicide” (p. 29).

Adjustment to disability

Blind and low vision youth may struggle to adjust to their disability. This adjustment process may be fluid and ongoing as the students face new environmental demands and expectations over time. Tuttle and Tuttle’s (2004) personal adjustment to vision loss model includes the following stages:

- Trauma
- Shock and Denial
- Mourning and Withdrawal
- Succumbing and Depression
- Reassessment and Reaffirmation
- Coping and Mobilization
- Self-Acceptance and Self-Esteem

While various models exist, adjustment to vision loss depends on individuals and their situations. Some may move quickly or slowly through stages, skip a stage, or cycle through the stages. Generally, the process includes a reaction to the vision loss and rebuilding phase.

When individuals have not adjusted to their vision loss, they may be less likely to access the services and resources that could improve their daily functioning and quality of life. For instance, students may be reluctant to utilize their assistive devices for fear of bringing attention to their visual condition or appearing different from their peers. However, infrequent use of assistive technology may reduce independence and efficiency in academic or vocational tasks.

Blind and low vision youth may benefit from support in exploring the intersectionality of their visual condition, culture, gender orientation, sexual orientation, race, physical ability, and nationality to gain an integrated sense of identity. Self-identity refers to how people define themselves in terms of physical or personality traits, values, abilities, and social roles. All of these may change over time with life experiences. Internal and external variables, such as interactions with others and their environment, may influence self-identity. Augestad (2017b) highlights the importance of experiences that promote cooperation, independent mobility, and opportunities to engage in activities with peers to build positive self-esteem and self-concept.

Services and interventions that address psychological and practical daily living skills assist in adjusting to vision loss. Examples include instruction on skills unique to disability-specific needs of blindness and low vision, social and recreational supports, connections with blind and low vision community groups, and counseling. Consider whether the student may benefit from counseling to adjust to their blindness or low vision. Counseling may assist with accepting their visual condition, developing a more integrated sense of identity, and increasing the use of services and tools to enhance independence.

References

Augestad, L. B. (2017a). Mental health among children and young adults with visual impairments: A systematic review. *Journal of Visual Impairment & Blindness, 111,* 411-425. https://doi.org/10.1177/0145482X1711100503

Augestad, L. B. (2017b). Self-concept and self-esteem among children and young adults with visual impairment: A systematic review. *Cogent Psychology*, *4*(1), 1-12. https://doi.org/10.1080/23311908.2017.1319652

Boagey, H., Jolly, J. K., & Ferrey, A. E. (2022). Psychological impact of vision loss. *Journal of Mental Health and Clinical Psychology*, *6*(3): 25-31. https://www.mentalhealthjournal.org/articles/psychological-impact-of-vision-loss.pdf

Demmin, D. L., & Silverstein, S. M. (2020). Visual impairment and mental health: Unmet needs and treatment options. *Clinical Opthalmology*, *14*, 4229–4251. https://doi.org/10.2147/OPTH.S258783

Kúld, P. B., Kef, S., & Sterkenburg, P. S. (2021). Bibliometric mapping of psychological well-being among children with a visual impairment. *British Journal of Visual Impairment*, *39*(2), 131–146. https://doi.org/10.1177/0264619620915245

Lundeen, E. A., Saydah, S., Ehrlich, J. R., & Saaddine, J. (2022). Self-reported vision impairment and psychological distress in U.S. adults. *Ophthalmic Epidemiology*, *29*(2), 171-181. https://doi.org/10.1080/09286586.2021.1918177

Robertson, A. O., Tadić, V., & Rahi, J. S. (2021). This is me: A qualitative investigation of young people’s experience of growing up with visual impairment. *PLOS ONE*, *16*(7), e0254009. https://doi.org/10.1371/journal.pone.0254009

Sims, S. V., Celso, B., & Lombardo, T. (2021). Emotional and behavioral assessment of youths with visual impairments utilizing the BASC-2. *Journal of Visual Impairment & Blindness*, *115*(4), 310–318. https://doi.org/10.1177/0145482X211028939

Tuttle, D. W., & Tuttle, N. R. (2004). *Self-esteem* *and adjusting with blindness: The process of responding to life’s demands* (3rd ed.). Charles C. Thomas Publisher Ltd. https://www.ccthomas.com/details.cfm?P_ISBN13=9780398075095

12. Physical, Motor and Sensory Development

Impacts on early physical and motor development

Vision plays a critical role in providing the motivation for the development of early motor skills. Much of the interest in acquiring mobility is based upon an infant's ability to visually scan their environment and move toward objects of interest. Without this stimulation or with modified degrees of stimulation, a key factor of motivation is often impacted. Many blind and low vision students will develop motor skills at a later date compared to their sighted peers. Delays may be slightly or extremely delayed based on the degree of vision loss and early intervention. Bakke and colleagues (2019) found that challenges and impacts on gait acquisition, posture, spatial orientation and timing, perceptual information coordination, environmental perception, understanding of one's own body and position in space, and development of functional daily living skills. Extreme delays, such as not walking until the age of four years, should always be considered as possible indicators of other difficulties.

Effects on later physical and motor development

Even as the blind and low vision student becomes older, differences in physical development are often noted. The blind and low vision student may have few opportunities for age-appropriate physical movement without support and intervention. Opportunities to play outside or participate in sports, dance, or other activities may require special arrangements. As a result, movement may be minimized. Passivity may become an issue. The blind and low vision child may have less interest and take less action in participating in physical movement. Specific encouragement and intervention are often required to maintain healthy physical activity levels.

Orientation and mobility

Blind and low vision children need conceptual understanding, skills, and tools to understand and move through their environment at home, at school, and in the community. Orientation and mobility ("O&M" for short) skills involve knowing where one is in relation to other objects and people in the environment (orientation) and knowing how to navigate to the desired destination using mobility skills and devices (mobility). Orientation and mobility instruction, provided by a trained orientation and mobility specialist, may encompass concept development, use of mobility devices, techniques for moving safely through the environment, and understanding when and how to seek additional information or assistance. Ultimately, the goal of O&M is to allow a student to travel as independently or interdependently as possible (Fazzi, 2014). Direct instruction in these skills promotes independence and safety.

Examples of Orientation and Mobility Skills

- Using techniques to move safely through one's home and school environment independently.
- Listening to traffic and other cues to determine the type of intersection and the safest time to cross.
- Learning to ask for assistance and direct a peer or teacher on how to provide help appropriately.
- Utilizing public transportation.

Sensory

Blind and low vision students may be sensitive to sound, touch, or other sensory information.

Proprioception is the sense of information about the relative positions of the parts of the body or body awareness and is required to regulate posture and movement. Proprioception is connected to the tactile and vestibular systems. Tactile defensiveness is when an individual reacts aversively to touch. Be conscious of the amount of sensory stimuli in the environment, especially with young children and children with cortical/cerebral visual impairment or multiple disabilities, as it can be difficult for them to focus when there are various competing stimuli in the environment at the same time. Blind and low vision students often seek additional sensory input to help regulate themselves. When sensory processing needs are not addressed, students may experience difficulties engaging in functional or academic tasks.

Self-stimulatory behavior

A special issue in physical development is that of self-stimulatory behaviors. Self-stimulatory behaviors (e.g., eye pressing, body rocking, and eye rubbing) may be observed in blind and low vision students (Houwen et al., 2022). Youth, particularly those with blindness or severe visual conditions, often develop self-stimulatory behaviors similar to those seen in students with autism spectrum disorder. The reason for this pattern is unclear. Most experts hypothesize that it is an attempt to bring stimulation to senses that may be deprived of other sensory experiences.

Self-stimulatory behaviors can be a number of different behaviors. They are typically repetitive behaviors without any clear function but may include behaviors as diverse as spinning, flapping hands, poking eyes, loud vocalizations, hitting of the face, shaking the head or other body parts, or jumping. Although not all blind and low vision children will develop these behaviors, a large percentage of those with severe visual impairment will have some type of self-stimulatory behavior as a young child.

For more information, review "Occupational Therapy and Sensory Integration for Children with Visual Impairment" (Ricketts, 2008).

Recreation and leisure

For blind and low vision children, learning about opportunities for recreation and leisure is important. While sighted students observe people in their communities at work and play, blind and low vision students might miss this information if their attention is not drawn to it. Providing blind and low vision children several opportunities to try a variety of different leisure activities in a safe environment will help them get a sense of what they enjoy and encourage them to become proficient, allowing them to dive deeper into the experience.

References

Bakke, H. A., Cavalcante, W. A., Oliveria, I. S., Sarinho, S. W., & Cattuzzo, M. T. (2019). Assessment of motor skills in children with visual impairment: A systematic and integrative review. *Clinical Medicine Insights: Pediatrics, 13.*, 1179556519838287. https://doi.org/10.1177/1179556519838287

Fazzi, D. L. (2014). Orientation and mobility. In C. B. Allman, C. B. & S. Lewis. (Eds.). *ECC essentials: Teaching the expanded core curriculum to students with visual impairments* (pp. 248-282). AFB Press. https://www.aph.org/product/ecc-essentials-teaching-the-expanded-core-curriculum-to-students-with-visual-impairments/

Houwen, S., Cox, R. F. A., Roza, M., Oude Lansink, F., van Wolferen, J., & Rietman, A. B. (2022). Sensory processing in young children with visual impairments: Use and extension of the Sensory Profile. *Research in Developmental Disabilities*, *127*, 104251. https://doi.org/10.1016/j.ridd.2022.104251

Ricketts, L. (2008). *Occupational therapy and sensory integration for children with visual impairment*. Paths to Literacy. https://www.pathstoliteracy.org/occupational-therapy-and-sensory-integration-for-children-with-visual-impairment/

13. Expanded Core Curriculum (ECC)

Introduction

The ECC refers to nine essential skill areas where blind and low vision students will require direct, systematic instruction instead of relying on skills to be acquired incidentally through observation of others, as may be the case for typically sighted peers. The ECC includes compensatory access, assistive technology, orientation and mobility, independent living, social interaction, recreation and leisure, career education, sensory efficiency, and self-determination (Allman & Lewis, 2014). Students require specialized tools and strategies delivered through direct instruction from a qualified Teacher of the Visually Impaired (TVI). In addition to providing direct instruction in

ECC knowledge and skills, the TVI also coordinates learning opportunities in collaboration with members of the student's educational team to ensure sufficient breadth and depth of learning in these essential areas. Rich learning opportunities in the ECC may present across a range of home, school, and community contexts, and so knowledge and skill development in the ECC can best be characterized as a shared project involving the student, their educational team, and related service agencies and organizations.

The ECC is generally consistent across North America. Please review the Provincial Resource Centre for the Visually Impaired's nine modules (PRCVI, n.d.) that link the ECC to the British Columbia K-12 Curriculum and resources to support instruction or this 55-minute recorded webinar to learn about how the ECC is an educational and legal requirement when considering the U.S.'s Individual with Disabilities Education Act (Brown et al., 2021).

Compensatory access or compensatory skills

Compensatory access includes the critical skills students need to access information and succeed in school. Examples include communication (e.g., speaking, listening, and writing), literacy skills (e.g., reading and writing using braille and Nemeth, large print, digital formats, or auditory means), concept development, and organizational and study skills. Compensatory skills help students to access functional academics or the general education curriculum.

Orientation and mobility (O&M)

O&M includes instruction on spatial awareness, positional concepts, and navigation within familiar and unfamiliar environments to be safe and efficient. Instruction may include body concepts, long white cane travel, guide techniques (previously known as “human guide” or “sighted guide”), street crossings, public transportation, community travel, recognition of cues and landmarks, and use of navigation technology, such as GPS apps.

Independent living skills

Independent living skills cover adaptive behaviors needed to function independently in school, home, and the community. Examples include personal hygiene, time and money management, food preparation and consumption, clothing care, organization of belongings, and household tasks.

Assistive technology or access technology skills

Assistive or access technology includes tools and skills that improve functioning for learning, communication, and more. High-tech and low-tech devices and strategies enhance access, participation, and independence in the educational, home, work, and community environments. Specific examples include braillers, refreshable braille displays, braille note-takers, magnification software and devices, optical character recognition software, screenreading software, speech-to-text software, keyboarding, and accessible ebook apps.

Social interaction skills

Social skills instruction helps students to understand and participate actively in social situations. Direct instruction may include understanding and engaging in social communication, social behaviors, and perspective-taking. Specific examples include turning toward others when speaking or being spoken to, using language to make a request, declining assistance, expressing a need, expressing emotion and affection appropriately, and participating in conversations in various situations.

Sensory efficiency skills

Sensory efficiency instruction involves using the senses to access and use information from the environment, including any functional vision, hearing, touch, smell, proprioception, vestibular, and other senses. Lessons can include practicing using optical devices, augmentative and alternative communication devices, tactile discrimination, and listening skills.

Self-determination skills

Self-determination skills include self-awareness, goal-setting, decision-making, self-advocacy, and problem-solving skills. Instruction may include researching the students' visual conditions, learning to request accommodations, developing goals based on interests and values, and recognizing personal strengths and challenges.

Career and vocational education skills

The 2017 American Community Survey from the U.S. Census Bureau found that “44 percent of people who are blind or visually impaired are employed, compared with 79 percent of those without disabilities” (American Foundation for the Blind, n.d., A Quick Overview of Employment Statistics section). This disparity highlights the need to carefully prepare blind and low vision students for independence and transition into their postsecondary and/or vocational life. Instruction in career and vocational education provides skills that enable students to move toward working as adults. Examples include learning about jobs and work roles at a developmentally appropriate level, exploring and expressing preferences about work roles, assuming responsibilities for chores or work at home and school, understanding concepts of reward for work, participating in job and volunteer experiences, and developing resume writing and interviewing skills.

Recreation and leisure skills

Recreation and leisure instruction allows students to explore and experience activities for leisure and enjoyment. Lessons in this ECC area can include making choices about how to spend leisure time, learning adapted games or sports, actively participating in physical and social recreational activities, following rules in games and activities, and discovering options for group or individual activities.

References

Allman, C. B., & Lewis, S. (2014). A strong foundation: The importance of the expanded core curriculum. In C.B. Allman & S. Lewis (Eds.), *ECC essentials: Teaching the expanded core curriculum to students with visual impairments* (pp. 15–30). AFB Press. https://www.aph.org/product/ecc-essentials-teaching-the-expanded-core-curriculum-to-students-with-visual-impairments/

American Foundation for the Blind. (n.d.).

Reviewing the disability employment research on people who are blind or visually impaired: Key takeaways. https://www.afb.org/research-and-initiatives/employment/reviewing-disability-employment-research-people-blind-visually#:~:text=Only%2044%20percent%20of%20people,percent%20of%20those%20without%20disabilities

Brown, L., Campbell, A., Conrad, T., Panikkar, R. K., & Lewis, S. [APH-American Printing House for the Blind]. (2021, July 28). *Expanded core curriculum (ECC): An educational and legal requirement* [Video]. YouTube. https://youtu.be/EYT5ZOYYVao

Provincial Resource Centre for the Visually Impaired. (n.d.). *The expanded core curriculum*. https://www.prcvi.org/resources/the-expanded-core-curriculum/

14. Braille Basics

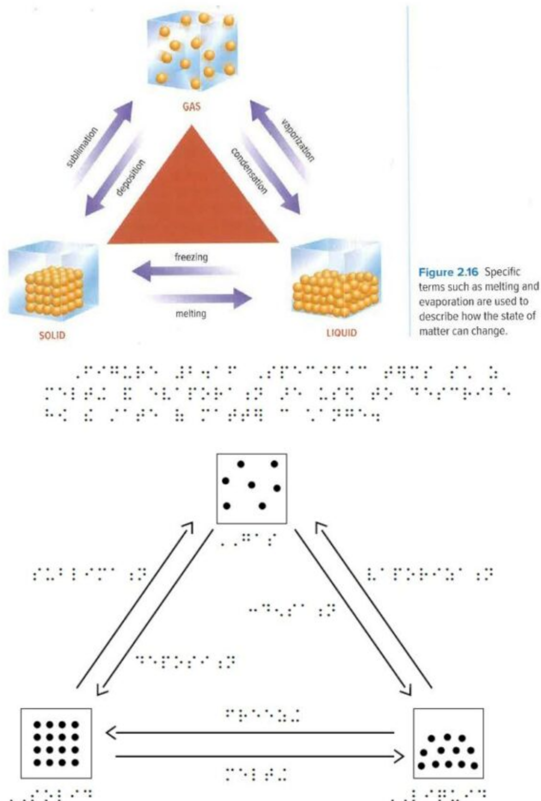
Importance of understanding braille

When evaluating a braille learner, it is important to have information about the braille writing system and to note the differences between braille and print. Recognizing discrepancies between braille and print allows an understanding of the complexity of the writing system and the orthographic knowledge required for fluent braille reading and writing. This understanding will help the evaluator interpret data and make appropriate recommendations.

Braille basics

Braille is a tactile writing system developed for people who are blind or have very low vision. A braille cell consists of an arrangement of raised dots. A full braille cell includes six raised dots arranged in two columns, each column having three dots. The number and amount of raised dots in a single cell can represent a letter, digit, punctuation mark, or a part- or whole word. For more details on braille as a writing system, review the Braille Literacy Canada website (n.d.).

Braille may be found on embossed illustrations and graphs, commonly referred to as tactile graphics. Tactile graphics are composed of raised lines, shapes, and textures that are specifically designed for haptic exploration. These graphics encode and display spatial data in a tactile medium (e.g., the relative proportion of sections of a pie chart). For more information, visit the introductory tactile graphics page on Paths to Literacy (Cushman, n.d.).



Comparison between original print diagram and tactile graphic. Used with permission.

Unified English Braille (UEB) was developed by the [International Council on English Braille](#) to unify the braille writing system for literary and technical work (2022). It is the writing system used across many countries around the world including Canada and the United States.

Many students begin their braille programming with uncontracted braille, which is a letter-by-letter transcription used to develop basic literacy. However, the TVI may determine that is appropriate to begin concurrently with instruction in uncontracted and contracted braille. Contracted braille includes the addition of abbreviations and contractions and represents an important efficiency feature in UEB. The early introduction of contractions is associated with higher literacy performance later in students' educational careers (Wall Emerson et al., 2009).

To better understand the distinction between uncontracted and contracted braille, it is important to note that unlike the print alphabet in which single letters are used to spell words, contracted braille relies upon several different functions for the alphabet. In some instances, the letters may be used singly to spell out words. In other instances, the letter may be used to refer to several letters that may be a prefix, suffix, an entire word, or a partial word. The braille reader must rely upon the meaning of the sentence and contextual clues based on where or how the character is used to determine what the character is referencing. As such, the process of braille reading requires a degree of inferential reasoning that is not seen in reading print.

Braille and reading speed

Reading braille is typically a more time-consuming task than reading print. The fastest braille reader will likely not read faster than the average student in upper grades of elementary school. Braille readers will typically need accommodations in time and/or amount of materials to be read.

Braille as one of many accommodations

Finally, many students who are braille readers use their vision to complete other academic tasks. It is not unusual to see a student reading braille and also using audio materials and magnifiers for other tasks. It is critical that the evaluator understand which accommodations and supports are used for each of the academic tasks.

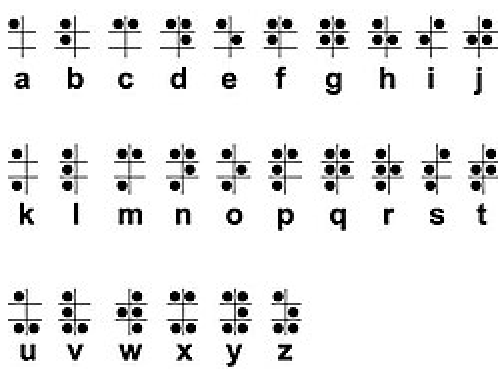


Image attribution: Geen idee, Public

Resources for learning braille

Beginning Braille is a free six-part webinar series designed to introduce parents, caregivers, and paraprofessionals to the Unified English Braille code (Herlich, 2020). Topics covered include alphabetic braille, numbers, basic punctuation, alphabetic word signs, and some of the most common short-form words and initial letter contractions. Each lesson includes a description, examples, and independent practices with answers.

The Braille Brain training project aims to support braille literacy and mathematics instruction (n.d.). The online training was created for TVIs, educators, paraprofessionals, and parents. The courses include UEB Foundation, UEB Foundation Assessments, and Nemeth. Each course includes various units and lessons. This training project is funded by the U.S. Department of Education, Rehabilitation Services Agency (H235E190002), and additional training is being developed, such as UEB Advanced.

References

Braille Brain. (n.d.) *Introduction and index*. https://braillebrain.aphtech.org/

Braille Literacy Canada. (n.d.). *Learn about braille*. https://www.brailleliteracycanada.ca/en/braille

Cushman, C. (n.d.). *Tactile graphics.* https://www.pathstoliteracy.org/tactile-graphics/

Herlich, S. [California School for the Blind]. (2020, August 24). *Braille basics webinar – Beginning braille* [YouTube playlist]. https://www.youtube.com/playlist?list=PLYwqRS8JwdkoW7Kp5IVHoElBAEUz-OrQb

International Council on English Braille. (2022, November 10). *Unified English Braille (UEB)*. https://www.iceb.org/ueb.html

Wall Emerson, R., Holbrook, M. C., & D'Andrea, F. M. (2009). Acquisition of literacy skills by young children who are blind: Results from the ABC braille study. *Journal of Visual*

Impairment & Blindness, *103*(10), 610-624. https://doi.org/10.1177/0145482X0910301005

15. Team of Professionals Working with Blind and Low Vision Students

Educational and other support team members

Teachers of the Visually Impaired (TVI)

The TVI provides direct or consultative services to students with blind and low vision students and their educational teams. Most of the direct instruction with students is in the areas of the Expanded Core Curriculum (ECC) given TVI's expertise in adaptive knowledge, skills, and tools for blind and low vision students. The TVI will also work collaboratively with families and community partner agencies to support ECC learning at home, school, and in the community.

Blind and low vision students also require meaningful, engaging, and equitable access to the core curriculum. The TVI will consult with classroom or subject-area teachers and support staff to ensure that the general education classroom's instructional programming and learning materials are accessible for blind and low vision students. For educator-focused strategies to make digital format learning materials more accessible, see the Accessible Resource Centre – British Columbia's Universal Design for Learning Materials portal (n.d.).

In addition to providing direct and consultative services, the TVI conducts specialized assessments to assist the educational team in understanding the functional implications of the student's visual condition and sensory profile. These assessments include the functional vision assessment and learning media assessment. Ideally, these assessments also address other areas of need in the ECC. The Review Special Reports and Documentation chapter contains more information about these assessments.

Review the position paper from the Division on Visual Impairments and Deafblindness of the Council for Exceptional Children to learn more about the TVI's roles (Spungin et al., 2017).

Orientation and Mobility Specialists (O&M)

O&M Specialists (also called O&M Instructors) teach blind and low vision students the skills, knowledge, and tools they need to travel safely and efficiently at home, school, and in the community. O&M Instructors are specially credentialed professionals. Some TVIs are dually qualified as TVI and O&M Specialists – but each is qualified/credentialed separately. APH ConnectCenter provides an overview of O&M (n.d.).

Adaptive Physical Education Specialist (APE)

The APE Specialist is a specially licensed PE teacher who can develop modifications and accommodations so children with disabilities can fully participate in PE safely.

The National Consortium for Physical Education for Individuals with Disabilities provides additional information about APE (n.d.). Explore Camp Abilities for videos, books, tip sheets, and other resources about APE for blind and low vision students (n.d.).

Braillist or braille transcriber

A braillist or braille transcriber is a paraprofessional with extensive knowledge of braille transcription and the creation of alternate format learning materials for students who read and write in braille. The braillist adapts day-to-day materials to braille and other formats. CareerExplorer describes the duties and responsibilities of this role (n.d.).

Intervenor

The intervenor (Canadian term) or intervener (term used in the USA) is a paraprofessional with training to provide access to information, communication, and instruction to deafblind individuals. An intervener facilitates the participation and interaction of the deafblind person with other people and the environment. Intervenors support the development of social-emotional and independent living skills. The National Center on Deaf-Blindness's fact sheet reviews interveners' roles and training (2021).

Other specialists

- Speech and Language Pathologist (SLP)
- Occupational Therapist (OT)
- Physiotherapist or Physical Therapist (PT)

- Behavioral Specialist
- Augmentative or Alternative Communication (AAC)
- Assistive Technology (AT) Specialist
- Inclusion Specialist
- Special Education Teacher or Resource Teacher

References

Accessible Resource Centre – British Columbia. (n.d.). *Universal design for learning materials*. https://www.arc-bc.org/universal-design

APH ConnectCenter. (n.d.). *What is orientation and mobility?* https://aphconnectcenter.org/visionaware/living-with-blindness-or-low-vision/getting-around/an-introduction-to-orientation-and-mobility-skills/

Camp Abilities. (n.d.). *Instructional materials*. https://www.campabilities.org/instructional-materials.html

CareerExplorer. (n.d.). *What does a braille transcriber do?*

https://www.careerexplorer.com/careers/braille-transcriber/

National Center on Deafblindness. (2021). *Intervener services and interveners in educational settings: Definition*. https://www.nationaldb.org/media/doc/NCDB_Intervener_Services_Definition.pdf

National Consortium for Physical Education for Individuals with Disabilities. (n.d.). *What is adapted physical education?* https://www.ncpeid.org/what-is-ape-

Spungin, S. J., Ferrell, K. A., & Monson, M. (2017). *The role and function of the teacher of students with visual impairments* [Position paper]. Division on Visual Impairments and Deafblindness, Council for Exceptional Children. https://dvidb.exceptionalchildren.org/sites/default/files/2021-03/_The_Role_and_Function_of_the_Teacher_of_Students_with_Visual_Impairments_.doc

16. Legislation and Educational Resources (Canada)

Inclusive education

In Canada, the Ministry of Education determines policy guidance for inclusive education services at the provincial/territorial level. For example, in British Columbia, the qualification of a student with a visual impairment is based on the following criteria. Per the British Columbia Ministry of Education (2016), the student's functional vision profile must be described by one or more of the following as outlined in a report from an optometrist, ophthalmologist, or the Visual Impairment Program at the Sunny Hill Health Centre:

- a visual acuity of 6/21 (20/70) or less in the better eye after correction;
- a visual field of 20 degrees or less;
- any progressive eye disease with a prognosis of becoming one of the above in the next few years; or
- a visual problem or related visual stamina that is not correctable and that results in the student functioning as if his or her visual acuity is limited to 6/21 (20/70) or less (p. 74).

Canadian copyright law

Production of material in an alternate format (e.g., large print and braille) is enabled by Section 32 of the Copyright Act (1958) when there is no commercially available material in the format required. This act permits the production of alternate formats of copyright material "for a person acting at the request" of a person with a perceptual disability (Copyright Act, 1958, para. 1).

References

British Columbia Ministry of Education. (2016). *Special education services: A manual of policies, procedures and guidelines*. https://www2.gov.bc.ca/assets/gov/education/administration/kindergarten-to-grade-12/inclusive/special_ed_policy_manual.pdf

Copyright Act, R.S.C., c. C-42, s. 32. (1958). https://laws-lois.justice.gc.ca/eng/acts/c-42/page-10.html#h-103789

17. Legislation and Educational Resources (USA)

Federal regulations and special education eligibility

The Individuals with Disabilities Education Act (IDEA, 2004) is the law in the United States that provides rights and protections to youth with disabilities and governs how infants to individuals up to 21 years old receive early intervention, special education, and related services. Per the IDEA's [Section 300.8 Child with a disability (c) (13)](#) (2004), the eligibility category of "[v]isual impairment including blindness means an impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness."

The US Department of Education Office of Special Education and Rehabilitative Services (OSEP) provides further guidance in the OSEP 17-50 memorandum titled "Eligibility Determinations for Children Suspected of Having a Visual Impairment Including Blindness under the Individuals with Disabilities Education Act" (Ryder, 2017).

State regulations and special education eligibility

Check your state's regulations for eligibility criteria as they may differ. States may adopt the same language for the eligibility category of visual impairment as in IDEA. For example, California's regulations for eligibility under the category of visual impairment are the same as the federal regulations; "[v]isual impairment including blindness means an impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness" (5 C.C.R. § 3030(b)(13)).

States may provide additional clarification on who qualifies or does not qualify under the eligibility category of visual impairment. For instance, per the California Department of Education's (CDE) *Guidelines for Programs Serving Students with Visual Impairments, 2014 Revised Edition*,

> The definition of students with visual impairments includes students with neurological visual impairments who are functionally blind or who have low vision, even with best correction. This qualifies them to receive services from a teacher of students with visual impairment...
>
> A visual impairment does not include visual perceptual or visual motor dysfunction resulting solely from a learning disability; students who have visual perceptual or visual motor dysfunction resulting solely from a learning disability do not meet the eligibility criteria for "visual impairment" or "low incidence disability" and are therefore not eligible for vision services

> or low incidence funding for specialized support services, books, materials, and equipment available to a student with a low incidence disability. (CDE, 2014. p. 7)

Different states may apply different regulations. For example, the Texas Administrative Code provides additional specifics for eligibility under visual impairment:

> (12) Visual impairment.
>
> (A) A student with a visual impairment is one who has been determined to meet the criteria for visual impairment as stated in 34 CFR, §300.8(c)(13). Information from a variety of sources must be considered by the multidisciplinary team that collects or reviews evaluation data in connection with the determination of a student's eligibility based on visual impairment in order to determine the need for specially designed instruction as stated in 34 CFR, §300.39 (b)(3), and must include:

(i) a medical report by a licensed ophthalmologist or optometrist that indicates the visual loss stated in exact measures of visual field and corrected visual acuity, at a distance and at near range, in each eye. If exact measures cannot be obtained, the eye specialist must so state and provide best estimates. The report should also include a diagnosis and prognosis whenever possible and whether the student has:

(I) no vision or visual loss after correction; or

(II) a progressive medical condition that will result in no vision or a visual loss after correction;

(ii) a functional vision evaluation by a certified teacher of students with visual impairments or a certified orientation and mobility specialist. The evaluation must include the performance of tasks in a variety of environments requiring the use of both near and distance vision and recommendations concerning the need for a clinical low vision evaluation;

(iii) a learning media assessment by a certified teacher of students with visual impairments. The learning media assessment must include recommendations concerning which specific visual, tactual, and/or auditory learning media are appropriate for the student and whether or not there is a need for ongoing evaluation in this area; and

(iv) as part of the full individual and initial evaluation, an orientation and mobility evaluation conducted by a person who is appropriately certified as an orientation and mobility specialist. The evaluation must be conducted in a variety of lighting conditions and in a variety of settings, including in the student's home, school, and community, and in settings unfamiliar to the student.

(B) A person who is appropriately certified as an orientation and mobility specialist must participate in any reevaluation as part of the multidisciplinary team, in accordance with 34 CFR, §§300.122 and 300.303-300.311, in evaluating data used to make the determination of the student's need for specially designed instruction.

(C) A person who is appropriately certified as an orientation and mobility specialist must participate, as part of a multidisciplinary team, in accordance with 34 CFR, §§300.122 and 300.303-300.311, in evaluating data used in making the determination of the student's eligibility as a student with a visual impairment" (19 T.A.C. §89.1040 (12)).

As noted above, some states require a medical report while others do not. If a medical diagnosis is required for eligibility determinations, the public educational agency must cover the cost to obtain the medical diagnosis and cannot use the medical diagnosis as the only factor in deciding whether the student meets special education eligibility requirements.

Per the OSEP 17-05 memorandum,

> There is nothing in the IDEA or the Part B regulations that would prevent a public agency from obtaining a medical diagnosis prior to determining whether the child has a particular disability, and the educational needs of the child. Also, there is nothing in the IDEA or the Part B regulations that would prohibit a State from requiring that a medical diagnosis be obtained for purposes of determining whether a child has a particular disability, provided the medical diagnosis is obtained at public expense and at no cost to the parents, and is not used as the sole criterion for

determining an appropriate educational program for the child. Further, if a State requires a medical diagnosis consistent with the above criteria, such a requirement exceeds the requirements of Part B of the IDEA. Under 34 CFR §300.199(a)(2), the State would be required to identify in writing to the LEAs located in the State, and to the Secretary, that such rule, regulation, or policy is a State-imposed requirement that is not required by Part B of the IDEA and Federal regulations. (Ryder, 2017, pp. 3-4).

References

California Department of Education. (2014). *Guidelines for programs serving students with visual impairments, 2014 revised edition*. https://www.csb-cde.ca.gov/resources/standards/documents/viguidelines-2014edition.pdf

Child with a disability, 34 C.F.R. § 300.8 (c)

(2004). https://sites.ed.gov/idea/regs/b/a/300.8/c/13

Eligibility Criteria, 5 C.C.R. § 3030. (1983 & rev. 2023). https://govt.westlaw.com/calregs/Document/I3042E4534C6911EC93A8000D3A7C4BC3?viewType=FullText&listSource=Search&originationContext=Search+Result&transitionType=SearchItem&contextData=(sc.Search)&navigationPath=Search%2fv1%2fresults%2fnavigation%2fi0ad62d2c00000182db228bc23a90fb5a%3fppcid%3d1e0b915510364d9e97e0ddeb8f94dfd8%26Nav%3dREGULATION_PUBLICVIEW%26fragmentIdentifier%3dI3042E4534C6911EC93A8000D3A7C4BC3%26startIndex%3d1%26transitionType%3dSearchItem%26contextData%3d%2528sc.Default%2529%26originationContext%3dSearch%2520Result&list=REGULATION_PUBLICVIEW&rank=2&t_T2=3030&t_S1=CA+ADC+s.

Eligibility Criteria, 19 T.A.C. § 89.1040. (2001 & amend. 2021). https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=T&app=9&p_dir=F&p

_rloc=206367&p_tloc=14584&p_ploc=1&pg=2&p_tac=&ti=19&pt=2&ch=89&rl=1040

Individuals With Disabilities Education Act, 20 U.S.C. § 1400 (2004). https://sites.ed.gov/idea/regs/b/a/300.8

Ryder, R. E. (2017). *Eligibility determinations for children suspected of having a visual impairment including blindness under the Individuals with Disabilities Education Act* [OSEP Policy Letter, OSEP 17-05]. United States Department of Education, Office of Special Education and Rehabilitative Services. https://sites.ed.gov/idea/files/letter-on-visual-impairment-5-22-17.pdf

18. Check Your Knowledge

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://pressbooks.bccampus.ca/vision/?p=315#h5p-3

PART IV

PSYCHO-EDUCATIONAL ASSESSMENT

Every psycho-educational assessment should include a multi-method, multi-informant approach. This typically includes a thorough review of records, gathering information from key individuals, observation of the student, and standardized testing. This approach is especially important when assessing blind and low vision children, where standardized measures may not always be available or valid.

This section will discuss issues specific to blindness and low vision to consider when reviewing records, gathering information, and planning before your assessment. These are in addition to all of the things you would normally do to prepare for an evaluation. As you will see, compared to standard evaluations, the time needed to prepare materials, conduct, and interpret an evaluation for a blind or low vision child will be longer and involve additional steps.

19. Planning for the Psycho-educational or Other Assessment

Assessment in the context of blindness or low vision

Developing competence in psycho-educational assessment with blind and low vision children involves much more than making adaptations for vision. Before starting this section, you should review this book's previous sections. Learning about visual impairments and the impact of vision on development is essential to provide appropriate adaptations, interpret results, make accurate diagnostic conclusions, and offer helpful recommendations.

Essential reading

It is essential that psychologists who assess blind and low vision children first carefully read the position paper *Comprehensive Evaluations of Individuals With Visual Impairments* (Engle et al., 2024).

Topics and Guidelines From *Comprehensive Evaluations of Individuals with Visual Impairments* (Engle et al., 2024)

Topics	Guidelines
1. Examiner Collaboration	1.1: Collaborate with the individual's visual impairment specialist. 1.2: While building competence, consult with a colleague in the same field (e.g., occupational therapy, speech-language pathology, or psychology) with expertise in visual impairments.
2. Ecological Validity and the RIOT (record review, interview, observation, and testing) Model	2.1: Use multiple methods of gathering information from various sources and informants and integrate the data for ecological validity. 2.2: (R) Records Review: Review records specific to visual impairment. 2.3: (I) Interview: Tailor interviews to include information relevant to examinees' visual impairment. 2.4: (O) Observation: Carefully observe the impact of vision on testing, and observe functioning in natural settings.

Topics	Guidelines
3. Impact of Visual Impairment on Development	3.1: Review information on an individual's visual condition and possible implications on development. 3.2: Consider that children with severe visual impairment have less access to incidental learning and concept development, which can impact their performance on standardized tests, including non-visual tests. 3.3: Gauge the extent to which an individual has had a solid base of experiential learning prior to determining the presence of disabilities.
4. Considerations in Test Selection and Administration	4.1: When using standardized tests, recognize the challenges and utility of the normative sample. 4.2: Assess domains such as auditory short-term memory, working memory, and listening comprehension. 4.3: Include a wider than normal sample of verbally-based measures when visually-based measures may not be valid. 4.4: Allow extra time for the assessment.

Topics	Guidelines
5. Considerations for Braille and Tactile Graphics	5.1: Recognize that braille is a complex system and not a simple tactile translation of print. 5.2: Evaluate braille readers along with an examiner with expertise in braille. 5.3: Determine the examinee's proficiency in interpreting tactile graphics before attempting standardized tests with tactile graphics.
6. Use of Visual Stimuli in Assessment	6.1: Administer tests with visual stimuli when appropriate based on the individual's level of vision. 6.2: Interpret visually-based test results as a minimum estimate of functioning. 6.3: Avoid tasks that require rapid processing of visual information in most cases or interpret with the visual impairment in mind.

Topics	Guidelines
7. Adaptations and Modifications	7.1: Plan adaptations and modifications based on the individual's specific visual needs, and document accordingly in the report. 7.2: Critically consider whether changes made to a test or how it is administered constitute an adaptation or a modification. 7.3: Do not interpret modified tests quantitatively, but results may be useful for qualitative purposes. 7.4: Allow assistive technology or alternative ways of demonstrating skills while considering the impact on construct validity. 7.5: Review the content of questionnaires and interviews carefully and adapt items to ensure they are appropriate.

Topics	Guidelines
8. Evaluating Co-occurring Conditions	8.1: Comprehensively evaluate individuals with visual impairments, including intellectual, communication, socio-emotional, motor, adaptive, and behavioral functioning. 8.2 (autism): Become familiar with typical development in children with visual impairments before diagnosing autism in individuals with visual impairments. 8.3 (deafblind): Acquire specialized knowledge and training before assessing individuals with co-occurring hearing and visual impairments. 8.4 (intellectual developmental disorder): Carefully consider the validity of both standardized cognitive tests and adaptive functioning measures when evaluating for intellectual developmental disorder. 8.5 (specific learning disorder): Review various factors related to learning media and educational experience when assessing for specific learning disorders. 8.6 (language disorder): Carefully consider functioning in natural environments and potential

Topics	Guidelines
	intervention needs when assessing language.

For further guidance on making an ethical, informed decision about when to proceed with an evaluation, when and where to seek consultation, and when to refer elsewhere, please see the PAR talks webinar "Assessment of children with visual impairments" (Engle & Nguyen, 2023).

Goals for assessment

Psycho-educational assessments are typically designed to answer referral questions. In the case of blind and low vision children, it is particularly true that no "one size fits all." The following questions are likely to be important:

- Are there additional disabilities that need to be identified or addressed?
- Are there sufficient supports and appropriate opportunities for the student

to learn?

- What motivates the student to learn?
- What level of engagement does the student show with learning activities?
- What level of concept development, reasoning, and problem-solving does the student demonstrate?
- What does the student do independently across settings?
- What are some “next tasks” for the student to learn?
- How does the student interact with others?
- Are changes or improvements needed, and how should they be addressed?

As you look at the above bullet points, you may find that some do not need assessment, as they are well established, while others may have been excluded from active consideration. Assessing blind and low vision children can sharpen your thinking about what is important to the child and family.

References

Engle, J., & Nguyen, M. (2023). *Assessment of children with visual impairments* [Webinar]. PAR talks. https://partalks.parinc.com/p/s/assessment-of-children-with-visual-impairments-part-of-our-disability-series-340

Engle, J. A., Nguyen, M. T., Goodman, S. A., Evans, C., & Loftin, M. (2024). *Comprehensive evaluations of individuals with visual impairments*. American Printing House. CC-BY-NC-SA 4.0. https://sites.aph.org/wp-content/uploads/2024/04/2024-APH-Guidance-Document.docx

20. Interacting with Blind and Low Vision Students

Speaking with a person who is blind or has low vision

- When initiating a conversation, always give your name to identify yourself. Doing so is both respectful and ensures that students can focus on the content of what you are saying instead of working to determine who is speaking.
- Provide a verbal cue to prepare a student for any touch or move. It can be scary to be touched without warning. Any contact without consent, however well-intentioned, is not supportive of the student's agency and independence.

- Use vision-related terms, such as “Have you seen…?” or “Look at ___.” However, do not use idioms or other language that associates blindness or low vision with ignorance, obliviousness, or helplessness. See this [BBC article on ableist language](#) (Nović, 2021).
- Use explicit instructions with directional terms (e.g., left, above, or 11 on a clock) instead of vague terms (e.g., this, that, here, and over there). Concrete referents in instructions are essential as demonstratives such as “this” and “that” used without context often assume that the receiver (in this case, the learner) has unimpaired visual access to what is being referred to.
- Provide a warning and some context about noises that may be unexpected (e.g., a timer will go off to signal the end of this activity).

Supporting a person's navigation of the environment and materials

- If guiding a student, offer your arm for the student to hold to help the student be more attentive and in control. You can ask the student what works best. Review step-by-step instructions for guide techniques (Wisconsin Department of Health Services, 2023).
- Describe the environment, resources, and obstacles if the student is unable to

identify these independently.

- As needed, and with the student's permission, to promote the student's sense of control and engagement in an activity, utilize hand-under-hand prompting. Hand-under-hand guidance is better when physical guidance is needed rather than hand-over-hand prompting. The hand-under-hand technique is demonstrated in the image at right, where the hand of the adult is exploring the keys of a manual braillewriter and the child's hand is on top of the adult's hand, facilitating the child's active engagement in the activity. To see hand-under-hand prompting in action, view this 6-minute video (Texas School for the Blind and Visually Impaired, 2017).
- For students who require more direct prompting and may not understand verbal prompts, never place an object directly into the student's hands. Instead, try presenting the object to the student's forearm and moving it slowly down toward their hand. This gives the student a preview of the objects, cues tactile

exploration, and gives them the opportunity to engage or disengage.

Understanding and accepting differences in behavior

- Be generous in your acceptance of self-stimulatory behaviors such as rocking, tapping, or vocalizing; they can be a means to maintain alertness in the face of tension, stress, boredom, or fatigue. Redirect to a more appropriate time or place if these behaviors are socially offensive.
- Anticipate and accept an eccentric gaze (head tilting or looking to the side); it may provide a more reliable focus for the student. Likewise, nystagmus (jerky eye movements) is not voluntary.
- Recognize that popular depictions of blind and low vision characters in the media may be based on stereotypes and may not be a true reflection of the blind and low vision community. For example, exploring someone's face by touch is not a common

strategy for familiarization. For more perspective on the importance of authentic representation in the media, see the World Services for the Blind article with insights from Joe Stretchay (Rogers, 2023).

Person-first vs. identity-first language

According to the American Psychological Association's *Inclusive Language Guide, Second Edition*, "[a]uthors who write about identity are encouraged to use terms and descriptions that both honor and explain person-first and identity-first perspectives. Language should be selected with the understanding that the individual's preference supersedes matters of style" (APA, 2023, p. 9). Many individuals take exception to their identity as blind and low vision people being relegated to secondary status with person-first language, as opposed to integral to their identity as promoted by identity-first language. A quick online search of this topic brings up many blog posts and other writings from disabled authors and content creators – always center disabled voices and perspectives when speaking about disability, such as the *Be My Eyes "Inclusive Language" Guide* (Bashin, 2024).

Some terms are considered problematic and should be avoided. These include euphemisms for blindness and low vision, such as the following:

- Visually challenged person
- Differently sighted person
- Sight-challenged person
- Person with blindness

The best practice is to use the term preferred by the student. This could include:

- Blind person
- Visually impaired person
- Low vision person
- Partially sighted person
- Person who is blind
- Person who is visually impaired
- Person who is vision-impaired

References

American Psychological Association. (2023). *Inclusive language guide* (2nd ed.). https://www.apa.org/about/apa/equity-diversity-inclusion/language-guidelines.pdf

Bashin, B. (2024, May). *Be My Eyes "inclusive language" guide*. Be My Eyes. https://www.bemyeyes.com/blog/be-my-eyes-inclusive-language-guide

Nović, S. (2021, April 5). *The harmful ableist language you unknowingly use*. BBC. https://www.bbc.com/worklife/article/20210330-the-harmful-ableist-language-you-unknowingly-use

Rogers, L. (2023, December 4). *Why representation matters in all the light we cannot see with Joe Strechay*. World Services for the Blind. https://www.wsblind.org/blog/2023/12/4/why-representation-matters-on-all-the-light-we-cannot-see-with-joe-strechay

Texas School for the Blind and Visually

Impaired. (2017, April 17). *Hand-under-hand vs. hand-over-hand with Carrie and Ben* [Video]. https://library.tsbvi.edu/Play/14634#!

Wisconsin Department of Health Services. (2023, January 13). *OBVI: Sighted guide techniques.* *https://www.dhs.wisconsin.gov/obvi/adjustment/sightedguidetech.htm*

21. Collaboration

Collaboration with vision specialists

Collaborating with the student's educational team is essential, particularly with the Teacher of the Visually Impaired (TVI), before starting your testing as well as throughout the process. TVIs provide guidance on the student's functional vision, appropriate adaptations for activities and environments to provide access, the student's learning media (e.g., print size or braille), and assistive technology needed to facilitate the student's access. Consultation with the TVI can provide information about the etiology of the student's visual impairment and an overview of educational considerations. Most TVIs are not trained in standardized assessment; therefore, working together is essential.

For assessors new to assessing blind and low vision individuals, it is also important to consult with a colleague in your field with expertise in visual impairment. To find colleagues with knowledge and experience, search for local organizations supporting blind and low vision individuals.

Collaboration with families

As with any evaluation, input from parents, guardians, or caregivers is crucial. Plan to spend extra time with parents to hear their stories, build relationships, and identify opportunities, expectations, and challenges related to a student's learning profile. Include a developmental history interview or questionnaire in your evaluation.

Information from medical records may clue you into exploring Cortical/cerebral visual impairment (CVI), which is a leading cause of pediatric visual impairment but is often challenging to diagnose. Some medical conditions associated with CVI include asphyxia, cerebral vascular accident (CVA), hypoxic-ischemic encephalopathy (HIE), periventricular leukomalacia (PVL), premature birth, stroke, brain tumor, congenital brain malformations, traumatic brain injury, intraventricular hemorrhage, cranial infections that are congenital or acquired (e.g., TORCH, CMV, toxoplasmosis, rubella, cytomegalovirus, herpes/HIV, meningitis, and Group B Strep), and chromosomal disorders (Philips & Gordon, 2014; Roman-Lantzy, 2018).

To tap into skills related to the Expanded Core Curriculum, ask parents, guardians, or caregivers about routines around self-care, nutrition, physical activity, and leisure time. Students' presentation of functioning may vary across settings. Skills demonstrated at school may not be seen at home and vice versa. Differences may exist between home and school in the level of expectations and support given to a student.

References

Philip, S.S., & Dutton, G.N. (2014). Cerebral visual impairment in children: A review. *Clinical and*

Experimental Optometry, 97(3), 196-208. https://doi.org/10.1111/cxo.12155

Roman-Lantzy, C. (2018). *Cortical visual impairment: An approach to assessment and intervention* (2nd ed.). AFB Press. https://www.aph.org/product/cortical-visual-impairment-an-approach-to-assessment-and-intervention-2nd-edition/

22. Review Special Reports and Documentation

Vision records

Review the student's ophthalmologist or optometrist report completed within the last year if possible. It is best to review this yourself rather than rely on indirect reports from others. If any information in the report is unclear to you, consult with the student's Teacher of the Visually Impaired (TVI). If a low vision exam has been conducted, review recommendations for low vision devices and accommodations.

See the chapter on Visual Conditions for a reminder of aspects of visual impairment and lists of specific eye conditions and their potential educational impacts. Check records for the onset and prognosis of the visual condition. Do the records indicate if the student’s vision is stable, fluctuating, improving, or deteriorating? How have they responded to any medical treatments or recommended devices? Are there any recommendations to prevent further vision loss? For example, some students may have cautions or restrictions to physical activities due to retina detachment precautions.

Functional vision and learning media needs

Review the student’s Functional Vision Assessment (FVA) and Learning Media Assessment (LMA). These assessments will help you understand what supports will be needed in your evaluation. The FVA will document what the child can see and how they use their vision across various settings, including what supports they use (e.g., technology, enlargement, and postural supports). The LMA will outline how the student accesses the curriculum (e.g., large print, braille, auditory, pictures, tactile graphics, and objects). For your assessment, it is essential to understand the student's visual abilities using both eyes, with correction (i.e., glasses), for doing near-based work. In addition to the student's visual acuity, you will need other information about their vision, including:

- Field loss
- Color vision
- Contrast sensitivity
- Sensitivity to visual clutter
- Visual attention/focus
- Visual fatigue
- Light sensitivity
- Tracking ability

For more information on Functional Vision Assessments, please see the fact sheet from the Colorado Department of Education (Toper, 2023).
For more on Learning Media Assessments, Paths to Literacy has an excellent overview of the purpose and scope of the LMA (Cushman, n.d.).

References

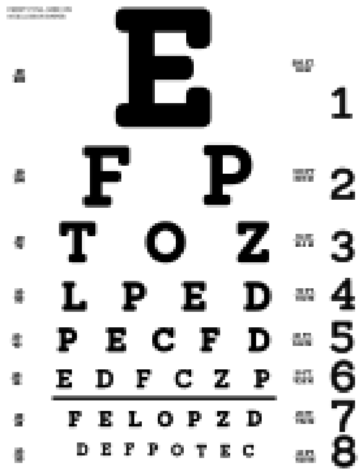
Cushman, C. (n.d.). *Overview of learning media assessment*. Paths to Literacy. https://www.pathstoliteracy.org/overview-learning-media-assessment/

Toper, I. L. (2023). *Deafblind fact sheet: Functional Vision assessment*. Colorado Department of Education. https://www.cde.state.co.us/cdesped/sd-db_factsheetwp_functionalvisionassessment

23. Impact of Visual Impairments on Testing

Visual acuity

The student's low visual acuity (clarity or sharpness of vision) may impact which psycho-educational test materials are accessible. The student's measurement of visual acuity will provide you with an overall sense of what size material they can see clearly; however, additional factors impact what size font or material a Teacher of the Visually Impaired (TVI) recommends. For example, a student with visual acuity of 20/80 may need material brought four times closer or presented four times larger in order to see the material the same as a student with 20/20 visual acuity. Visual acuity is typically measured using an eye chart like the one below.



Openclipart, CC0, via Wikimedia Commons

Following are some specific examples of potential difficulty for blind and low vision students during the psychology assessment:

- Reading small text. Even if a student is *able to* read the text, it may be highly demanding, resulting in slower reading, visual fatigue, and avoidance. Reading enlarged text may be easier but may also be slower.

- Accurately seeing small details in pictures, such as the facial expressions of people in the picture (e.g., “Which one shows *laughing*?”).

- Seeing the difference between small, similar objects or shapes (e.g., a small circle vs. a small square on WISC Figure Weights).

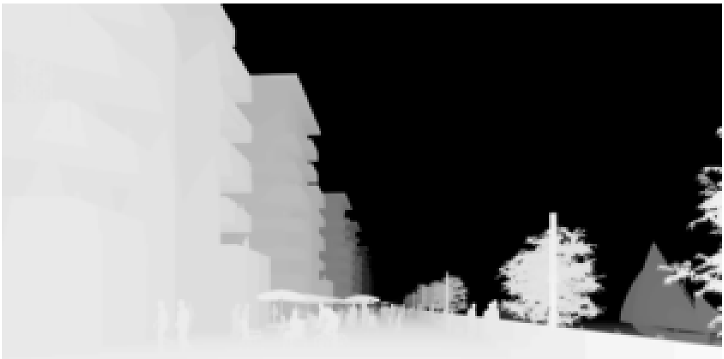
- Tasks that rely on quick visual scanning (e.g., WISC Coding and Symbol Search).

In addition to other aspects of their vision and visual-perceptual skills, we need to consider the student’s familiarity with the material. For example, think about when a child is learning to read. We provide young students with enlarged font as they are becoming familiar with letters and words. A student’s familiarity with the material will make a difference in what they are able to understand visually.

It is important to remember that a student’s visual acuity does not “tell the whole story” of what they are able to see. Consulting with the student's TVI and reviewing the student's Functional Visual Assessment and Learning Media Assessment will give you insight into how that student uses their vision.

Depth perception/single-eye vision

Depth perception is important for many aspects of a student's life. However, a lack of depth perception should not impact a student's performance on your psycho-educational assessment.



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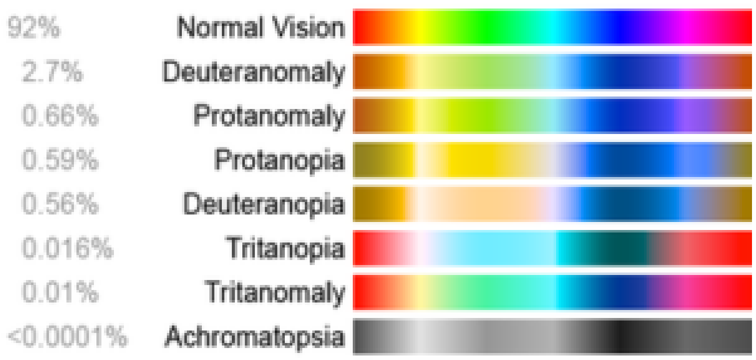
Color vision

Color blindness is a relatively common condition in the general population. Therefore, test publishers will typically consider this when developing their tests. Pearson (publisher of common IQ tests such as the WISC, WASI, WAIS, and WPPSI) published a FAQ (Pearson, 2023), which discusses the various steps they take to ensure the tests are fair for colorblind people. Test manuals should have information about the impact of color vision on their specific test. One area where a psychologist should be particularly aware of the impact of color vision is on “Stroop” type tests, which require the student to name the colors they see quickly. For a student with color blindness, it would be best to skip this type of test.



Nanobot, Public domain, via Wikimedia Commons

Loss of vision in the center of the visual field

The center of our visual fields is important for seeing color and fine details. When a student has visual conditions that impact the center of their visual field, they may use a head turn or look at things “out of the corner of their eye” to take advantage of their intact area of vision. The student may not detect the loss of small spots of vision as our brains "fill in" missing information. Because we use the center of our vision to see details clearly, students with significant central visual field loss are likely to have difficulty with some of the same things listed above under "visual acuity."

National Eye Institute, National Institutes of Health, Public domain, via Wikimedia Commons

Loss of peripheral vision ("tunnel vision")

Loss of vision in the periphery of the field of vision (sparing central vision) has many impacts on orientation and mobility. In most cases, it is not likely to impact your psycho-educational assessment. However, if the student has a very constricted visual field, using their vision may be highly fatiguing. With a very constricted visual field, students may have difficulty integrating multiple parts of a stimulus picture. For example, if the student cannot keep the entire picture in their field of vision at once and must scan around the page, this increases the working memory load of the task. Rather than being able to see a stimulus and all of the responses at once, the student must scan and hold in mind each one separately.

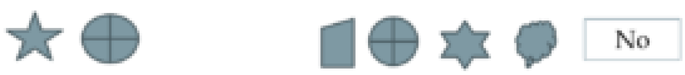
National Eye Institute, National Institutes of Health, Public domain, via Wikimedia Commons

Other visual field loss

Please see the previous discussion of homonymous hemianopia and its impact on reading. To summarize, right homonymous hemianopia (RHH) impacts the right half of the field of vision of both eyes and left homonymous hemianopia (LHH) impacts the left half of the field of vision of both eyes. In languages read left to right (like English), RHH will have a larger impact on reading, as readers in English scan ahead with their right peripheral vision (Lawrence et al., 2018). LHH can also impact reading as students may get lost between lines of text. RHH and LHH should be considered when interpreting the accuracy and speed of a student's reading.

It is important to make sure that students with a RHH or LHH are scanning across a page appropriately. For example, if they are consistently making choices from one side of the page versus the other, this may be due to missing information on their affected side.

Students with homonymous hemianopia who have learned to scan across pages well may still show scanning errors when pushed for speed, such as on tasks like the WISC's Symbol Search subtest. Students may show "false negatives" on this subtest when the target stimuli to search for is on their affected side. In the picture below, there are two symbols on the left (a star and a circle with a plus in it), which are the target stimuli to search for on the right. A student with RHH might make a mistake and choose “No.” When they quickly view the shapes on the left, they miss the shape on the right side (a circle with a plus) and only search for the star. Then, when they scan the shapes on the right, they do not see a match. In this case, the subtest cannot be interpreted as a valid measure of processing speed. Close examination of student errors is essential.



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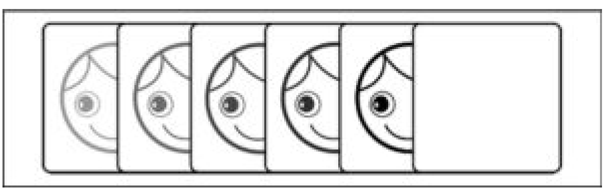
Students with a loss of vision in a single quadrant (e.g., upper right or lower left) of their visual field will likely show less impact on psychology testing. In particular, an upper quadrant field loss should not impact a student’s performance on testing.

Contrast sensitivity

Contrast sensitivity is the ability to detect subtle visual differences between light and dark. It is especially important in conditions with low light or glare. In the psychology assessment, someone with difficulty with contrast sensitivity could have difficulty reading text if written in a light color or placed on a darker background. They may have difficulty seeing their own writing if using a light pencil.



Computer.club.ksauhs, CC BY-SA 4.0, via Wikimedia Commons

Cortical/Cerebral visual impairment (CVI)

Individuals with CVI may show a variety of visual challenges. You may see difficulty with contrast sensitivity, challenges with visually complex or crowded tasks, trouble focusing visual attention, or fluctuations in visual functioning. In the psycho-educational assessment, the student may have difficulty with efficiently visually scanning a page, especially when it is visually complex. This could include difficulty scanning across multiple choice options, such as on a Matrix Reasoning task. The student might be easily overwhelmed by visually complex materials, including a busy worksheet.

Fatigue

Although not a visual *condition*, fatigue is an important issue for the evaluator to understand. Fatigue may stem not only from straining to see (eye fatigue) but may also be due to postural fatigue from turning heads and bodies in awkward ways. Children may not fully recognize their own fatigue, so the evaluator must be very alert. Watch for behavioral signs that indicate fatigue has set in, and provide regular breaks. It can be helpful to ask the student's teacher about their limits before the evaluation and try to stop five minutes before that time limit. A break can be as simple as looking away from the materials while chatting for a few minutes or going for a walk. Purposefully alternating visual and verbal tasks during the assessment also can be helpful.

References

Lawrence, L., Jones, M., & Vernick, A. (2018). *Vision after hemispherectomy, TPO disconnection, and occipital lobectomy: An introductory guide*. The Brain Recovery Project: Childhood Epilepsy Surgery Foundation. https://epilepsysurgeryalliance.org/wp-content/uploads/2017/06/FINAL-Vision-After-

Hemispherectomy-TPO-Disconnection-and-Occipital-Lobectomy.pdf

Pearson. (2023, August 30). *Wechsler products: Is color blindness a factor*. https://support.pearson.com/usclinical/s/article/WISC-V-Color-Blindness-Accommodations

24. Testing Room and Materials Adaptations During Assessment

Overview of changes to standardized procedures

The first step in making adaptations is to consult with the student's Teacher of the Visually Impaired (TVI). When considering changes to standardized testing procedures, strive to neither increase nor decrease the demands relative to what would be expected of a sighted individual. Ask yourself – does the adaptation I am offering the student *change* what is being measured? Does it make the task *easier*? Does it make the task *harder*?

Document any changes to standardized procedures carefully in your report. If adaptations alter the task demands, this would be considered a modification. For a modification, it is appropriate to interpret the results qualitatively and not report scores.

Room set-up and special materials

Lighting

Pay attention to glare and the impact of shadows falling on the work surface.

Be alert to the student's optimal lighting. A student sensitive to bright lights may need the lights dimmed, whereas another student may need brighter lights. Overhead lights do not need to be on. Pay attention to the seating position in relation to lighting (e.g., windows, lamps, and overheads) and how this may create shadows or glare on the materials. Check with the student during the assessment to modify lighting as needed.

Quiet and minimal clutter

Choose a quiet setting, as students who rely heavily on hearing will be impacted by a noisy setting. For low vision students, avoiding a location with lots of "visual clutter" may help the student focus.

Positioning

Students may want to move materials to a comfortable viewing position. They may need to look out of the side of their eyes or place materials to one side or the other. They may need to get close up to the materials. Be flexible with following what the student needs.

Devices and technology

Be aware of which adaptive devices the student will use during the evaluation. The student and their vision teacher should be informed of what is needed for the day and make sure they come prepared. For example, remind students to wear their glasses and bring charging cables or extra batteries if required. If you are uncomfortable using the devices, make arrangements to have support from someone knowledgeable and experienced during testing.

Bringing material closer

A bookstand (or book holder) can help bring visual materials closer to the student's eyes and decrease glare. It may be helpful to raise the bookstand off the table by placing it on books or a box to bring the material close to eye level. Be careful not to hit the student in the face when flipping pages! Consider whether presenting material in this near-vertical format (rather than flat on the table) could impact the student's performance. For example, the WISC Block Design stimuli were intended to lay flat, and placing the material vertically could make this task more challenging. The image below shows a stimulus book placed on a book stand and raised from the table by textbooks to bring it closer to eye level.

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A slant board is a wood, plastic, or plexiglass surface used for reading or writing. The slant board may need to be adjusted between reading and writing activities. While a higher angle may be more comfortable for reading, a slant board positioned between a 20- to 45-degree angle may be more comfortable for writing. It should not have a lip or ridge at the bottom, which may make writing uncomfortable (see the photo below for an example). A three-inch binder turned sideways can be used if you do not have a slant board.

Increasing contrast and spacing

- Some students will benefit from using a pen or fine felt tip marker rather than a pencil to increase the visibility of their writing. Be cautious about using a thick pen or marker on tasks where accuracy is important (e.g., on the VMI Motor Coordination subtest) or tasks where the ink will bleed through to the other side of the respond book page (e.g., WIAT Numerical Operations).

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- Large-spaced, thick-lined paper can also be helpful for some students when writing. You can download and print this type of paper for free from various websites.
- On visually complex tasks (e.g., WRAML3 Picture Memory Recognition subtest), covering up unnecessary information (i.e., items they are not currently working on) can help the student focus.
- Using a black contrast mat (i.e., desk mat or desk pad) can help some students to

visually focus on the area in front of them. It can also be helpful for working with white blocks on a white tabletop.

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Enlargement and magnification

General Considerations

Some students may need visual information that is presented larger than what is provided by the test publishers. There are various options to support a student's ability to see materials during your assessment. You need to use the tools and methods the student is already familiar with rather than attempt to introduce new methods. Depending on the task, one student may require different types of enlargement or magnification.

Making things larger can be a fair and appropriate adaptation. However, be aware that enlargement can make the task easier OR harder depending on the task. Enlarging a page can make seeing the entire scene in one glance harder. If the student must scan across the enlarged field, the load on the student's working memory increases. The need to scan across a large field can also impact speed, so enlarging timed tests can be problematic. Enlarging can also make a task easier. For example, enlarging would make the task much easier if a student is asked to trace carefully within the lines (e.g., VMI Motor Coordination subtest).

Copyright considerations

Complying with your national copyright law is important if you are reproducing material. As mentioned in the Legislation and Educational Resources (Canada) chapter, Section 32 of the Copyright Act (1958) allows for the reproduction of material for persons with a perceptual disability if it is not commercially available.

In the United States, there are limitations on the rights to reproduce works for individuals with visual, perceptual, or physical disabilities. Per Title 17 of the U.S. Code § 121 – Limitations on exclusive rights: Reproduction for blind or other people with disabilities, works can be reproduced in accessible formats with the exception that the provisions "shall not apply to standardized, secure, or norm-referenced tests and related testing material" (United States Copyright Office, 2022, p. 136).

Physical enlargement

If your country's relevant copyright laws allow for the reproduction of standardized tests, many students will do best with physically modifying material (material reproduced larger in a paper format).

- Photocopy enlargement: Be sure to create a high-quality enlargement with good contrast. Be sure to include all visuals together on a single page when possible. With photocopies, present only one page at a time so that there is no interference from lines or text showing through from the page underneath (as the pages are generally thin).
- Re-creating tests in large print: It is essential to double-check your work to ensure absolute 100% accuracy. Recreate the same font and spacing (including where lines end) unless a modification is necessary for the student's accessibility.

Magnification during the assessment

Another option for visual tasks is to use technology to enlarge visuals during the assessment. If you use one of the following options, ensure that the ENTIRE PAGE can be seen on one screen without moving the page around to see the whole thing.

- Some students have magnification technology that they may be able to bring to the assessment (e.g., closed circuit television or video magnifier). This might include a camera mounted on a stand, pointed at the test material and connected to a screen on the table. The benefit of using these sorts of technology is that students can vary the magnification level, lighting, color, and contrast modes. The image below shows a closed circuit television (CCTV) which can be used for magnification.

U.S. Department of Agriculture in Washington, Public domain, via Wikimedia Commons

- Another option is to use a document camera that connects to a computer monitor. An iPad camera can be used as a document camera by connecting it via an Apple adaptor and HDMI cable to your computer monitor. This option does not require any separate software or programs. The degree of magnification will depend on the size and quality of your computer monitor.

- Finally, if you are using Pearson's Q-interactive to administer tests on an iPad, you can connect the student's iPad to a computer monitor using an Apple adapter and HDMI cable. This option is similar to the method above, but instead of using the camera on the iPad, you are mirroring the iPad screen on the monitor. This method has the benefit of providing a perfectly clear and centered image on the computer monitor. For more information on how to do this, see "How to connect your iPad to your TV in two ways" (Johnson, 2022).

Braille transcription

In the United States, copyright laws prohibit the reproduction of standardized tests. A TVI or transcriber within your local educational organization cannot transcribe a standardized test into braille. The test publishers and publishing companies adapting the tests into accessible formats extensively review the test content. Item changes, omissions, or substitutions may occur to maintain the validity of the test when transcribed to braille or tactile graphics.

If your national copyright laws permit the reproduction of standardized tests, it is essential to know about the student's braille ability when recreating text in braille. Are they using contracted or uncontracted braille? Do they need extra space between lines? Double-check the transcription to ensure absolute 100% accuracy. In addition, check with a TVI to determine if the difficulty of the content has increased or decreased due to being in braille. Students who are at an early literacy stage and in the process of learning braille may appear to misspell words that they may have confused with braille contractions. Careful error analysis should be done with a TVI.

Alternative presentation and response methods

Abacus

Blind students may use an abacus to solve math problems. Using an abacus is equivalent to a sighted student using paper and pencil for calculations. It is not the same as using a calculator. Therefore, an abacus should be allowed if it is part of the student's typical calculation method when others are doing paper-and-pencil math work. Braille learners may use a brailler to work out math calculations. Again, this is equivalent to allowing the sighted student to use paper and pencil. It would be appropriate to allow a student to use a brailler or abacus on WIAT Numerical Operations but not on WISC Arithmetic (which is intended to measure mental math).

Braille

Some blind and low vision students do all of their writing via keyboard, brailler, or assistive technology devices with braille input options such as notetaker devices (e.g., BrailleNote Touch or BrailleSense Polaris). A brailler is a braille typewriter with a key corresponding to each of the six dots of the braille code. If you are completing an evaluation of a student who is a braille learner, it is crucial to include a professional proficient in braille. An evaluator not skilled in braille should only administer tests adapted to braille when appropriate help is available. Administration and interpretation of tests in braille should be done with an evaluator proficient in the given standardized test and an ancillary evaluator with braille proficiency. Below is a photo of a Perkins brailler.

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Keyboard

Students who only write via keyboarding may need to use their keyboard and associated programs for written response tests. If a student who uses a keyboard can see the text on the screen accurately, it is best practice to turn off audio feedback and spelling and grammar check software. Students who rely on audio feedback will need to keep that on during the testing so they can review what they have written.

Oral presentation

For reading tests, if you read aloud a passage, the task has changed and is now measuring oral comprehension. In that case, it is better to switch to a test designed for oral comprehension (e.g., OPUS or CELF-5). If you need to measure reading comprehension in an advanced braille reader, the text should be transcribed into braille if allowable by applicable copyright laws, or use a test that has been adapted into braille, such as adapted tests produced by the American Printing House for the Blind.

If the student prefers audio screen readers (where the student can hear the text read aloud), you can have the print text transcribed into digital text. The student would need to use their regular screen reader software without extra support (e.g., access to a dictionary). For students whose primary learning media is auditory, it is not possible to measure reading accuracy or fluency, only listening comprehension of academic materials.

Dictation

Blind and low vision students who are learning early literacy skills may be able to spell words orally but not be able to write. In that case, allow the student to dictate spelling words for you to write. If they can see the writing, ensure they can watch you write so they can self-correct if they notice an error.

Advanced writing students who are blind or have significantly low vision and have not yet developed proficient brailling or keyboarding skills (or who have a motor impairment affecting their writing) may use dictation software for writing. While dictation significantly modifies a writing task, it may be the most appropriate way to evaluate a student's ability to produce written output functionally. Note whether the student's dictation includes grammar and punctuation (e.g., states when commas should be inserted).

Manipulatives

To assess early vocabulary and concept development in children, you can provide a variety of familiar, real objects for them to identify by touch (e.g., pencil, cup, fork, or brush). You can also use unfamiliar (new objects) to assess learning (by teaching a new word and later assessing memory). Recognize the vast difference between something real (a cat) and a plastic representation (cat figurine). Consider carefully any use of representative objects. Use real objects whenever possible. To assess the counting of objects, consider having bins to separate “to do” from “done.”

Visual checks

You may want to start off by telling children that you are not trying to test their eyesight.

If they have difficulty seeing ANYTHING during the assessment, it is important that they let you know. However, some children cannot or will not tell you if they are having difficulty seeing. If you have concerns about the child's ability to see details correctly, it is essential to check with the child. When the discontinue is met, return to an item where they made an error and ask the child to describe precisely what they see. Ask the child to describe what they see rather than ask, "Can you see this?" Pay attention to possible problems, such as misinterpretation of visuals due to color, mislabeling, or missing details. When tests are challenging for the child to see (when they can see but it is effortful), consider whether these tests are necessary to administer. Realize that they may not be measuring what the test was designed to measure.

References

Copyright Act, R.S.C., c. C-42, s. 32. (1958). https://laws-lois.justice.gc.ca/eng/acts/c-42/page-10.html#h-103789

Johnson, D. (2022, November 3). *How to connect an iPad to your tv in two different ways*. Business Insider Reviews. https://www.businessinsider.com/guides/tech/how-to-connect-ipad-to-tv

United States Copyright Office. (2022). *Copyright law of the United States and related laws contained in Title 17 of the United States Code*. https://www.copyright.gov/title17/title17.pdf

25. Test Selection Overview

Key points

Standardized tests were developed to be used with individuals who are sighted. Collaborate with the Teacher of the Visually Impaired (TVI) to select tests and determine appropriate test accommodations or modifications. Document any breaks from standardized procedures in your report. Consider whether qualitative interpretation would be more meaningful and appropriate. Remember that standardized tests are only one part of your assessment. Evaluations should also include reviewing records, observing the student, and gathering information from parents and teachers.

General guidelines for test selection

Reflect on the following questions and topics when building your test battery (California School for the Blind Assessment Center team, n.d.).

- How does vision impact the specific child's access to the specific test or part of the test?
- Considering the child's vision, is the test evaluating the skill it was intended to measure?
- How does vision impact the development of the skill being assessed? Think about what we discussed regarding concept development and how it might affect the student's background knowledge related to the test.
- Select tests that are accessible without adaptations or modifications whenever possible. If tests need to be modified, they should not be scored or used to make decisions. However, the student's performance on modified tests can offer

important clinical insights.
- Instead of relying on the test names (e.g., “Verbal IQ” on the Standford Binet, which involves responding to some visually complex pictures), consider the specific tasks involved.
- Exercise caution with tests that require using small manipulatives.

List of tests and subtests presented auditorily

Tests with solely auditory stimuli usually do not need administration modifications for blind or low vision youth; however, reviewing the test item content aids in analyzing potential performance impacts from vision (e.g., limited incidental learning opportunities affecting concept development). The Cognitive and Processing Subtests to Consider for Assessing Students with Visual Impairments handout provides information about subtests primarily administered verbally or with audio files (Nguyen, 2024).

Should I give tests that rely on vision?

Yes, when the student uses vision for learning and has adequate vision for the specific test. Visual learning and processing are stronger for some students than verbal analogs! If the student can do a test but it is visually challenging, you may want to try it, using adaptations or modifications if needed. If the student does well, this tells you about their strength. However, if the student does not do well, you cannot interpret that as an area of weakness. For example, a low score on the Processing Speed subtests of the WISC may tell you more about how fast a student can manage a visually challenging worksheet rather than anything about their mental processing speed.

References

California School for the Blind Assessment Center Team. (n.d.). *Frequently asked* *questions (FAQs) – consultation*. California School for the Blind. https://www.csb-cde.ca.gov/outreach/assessmentcenter/faqs.aspx

Nguyen, M. (2024). Cognitive and processing subtests to consider for assessing students with visual impairments [Webinar handout]. California School for the Blind. https://docs.google.com/document/d/e/2PACX-1vRfRb40QLIjtroZHLjsQNUrnC2rcwIRaFGAl_mDtLqRMUX397olOSfE7WTG0DrtB9Ht1MFa95T_FMUw/pub

26. Important Areas to Assess

Standardized testing

Performance validity

Performance validity is important to measure in all psycho-educational assessments via objective measures. It is considered standard of care (e.g., National Academy of Neuropsychology position paper [Bush et al., 2005] and American Academy of Clinical Neuropsychology position paper [Sweet et al., 2021]). Unfortunately, most free-standing performance validity measures rely on vision. The Memory Validity Profile (MVP) provides separate norms for a purely auditory measure of performance validity (Sherman & Brooks, 2015). The MVP would be a brief, limited sample of performance validity. The Word Memory Test

(WMT) has an oral version (Green, 2003). It is available to subscribers of the standard WMT at an additional cost. Only part of the oral WMT is accessible to blind and low vision students as there is a written multiple-choice section. Moreover, the oral version of the WMT has not been validated for use in children. The Pediatric Performance Validity Test Suite (PdPVTS) has five standalone brief measures of performance validity, one of which (Story Memory for ages 7-18) is administered auditorily (McCaffrey et al., 2020).

While using standalone performance validity measures is typical for neuropsychologists, school psychologists often rely on informal methods to measure response bias (Lovett et al., 2023). If unfamiliar with performance validity assessment, school psychologists should review “Response Validity in Psychoeducational Assessment: A Primer for School Psychologists” (Lovett et al., 2020).

Verbal reasoning

Verbal reasoning should be assessed in depth if perceptual reasoning cannot be validly assessed. You might consider adding "supplemental" verbal IQ tests. For example, on the WISC-V, you might include the Information and Comprehension subtests. Comprehension can assess verbal skills beyond "rote" learning to assess social judgment. However, there is evidence that scores on this subtest may be related to the level of visual impairment, presumably due to differences in concept development (Groenveld & Jan, 1992). The WISC-V has a Verbal (Expanded Crystallized) Index (VECI), which is comprised of the Similarities, Vocabulary, Information, and Comprehension subtests (Raiford et al., 2015). Normative data is only available based on the USA standardization sample (see the WISC-V Technical Report #1 Expanded Index Scores for score conversion tables, Raiford et al., 2015).

Another option is to use a cross-battery method of assessment. Per Decker and colleagues (2018),

> The XBA approach often results in a more psychometrically stable and complete picture of cognitive abilities than that which can be obtained by a single battery. This approach may aid examiners of children with VI/B in selecting test instruments, as subtests from different batteries can be administered according to both their contributions to the CHC broad abilities and their level of appropriateness for these children. (p. 670)

For instance, an examiner might select the following subtests to evaluate verbal reasoning: DAS-II Verbal Similarities, RIAS-2 Guess What, RIAS-2 Verbal Reasoning, and CELF-5 Semantic Relationships.

Investigate the depth of meaning behind word use if the youth's responses suggest the possibility of "hollow" language. Questions such as "How did you know that?" or "How would you use this information?" can clarify understanding.

Auditory memory

Rote auditory memory (short- and long-term) and working memory are essential to assess. Blind students often start their educational path through rote memory. Research consistently shows as a group, blind and low vision students tend to show strong auditory short-term memory, whereas working memory might not be as strong (reviewed in Greenaway et al., 2017). Assess working memory, not just rote short-term memory or recitation.

Consider the potential impact of concept development on the youth's performance. For example, the WRAML3 Verbal Working Memory task requires students to know the relative size difference between various objects (Adams & Sheslow, 2021).

Options that provide composite scores by combining the performance from two or more subtests include the WISC-V and WJ-IV. The WISC-V provides an Auditory Working Memory Index, which is comprised of Digit Span and Letter Number Sequencing subtests (Wechsler, 2014). The WJ IV has the option of the Short-Term Working Memory and the Short-Term Working Memory Extended Clusters (Schrank et al., 2014). The Verbal Attention and Numbers Reversed Tests are in both clusters while the Object-Number Sequencing Test is added to create the extended cluster.

Listening comprehension

Auditory or oral comprehension (listening comprehension) is an essential skill for primarily auditory learners. When choosing a test, consider the visual demands of the task. For example, the WIAT-4 Oral Discourse Comprehension is a completely oral measure of auditory comprehension (NCS Pearson, 2020), whereas NEPSY-II Comprehension of Instructions has significant visual demands (Korkman et al., 2007).

Tactile skills

Tactile skills can be evaluated with the Tactual Performance Test (TPT). The TPT is a part of the Halstead-Reitan Neuropsychological Test Battery (Reitan & Wolfson, 1985) and was adapted for use with blind adults (Bigler & Tucker, 1981). The TPT requires a person to put blocks of different shapes into the corresponding holes in a board. Respondents need to use tactile form discrimination, kinesthesis, upper extremity coordination and movement, manual dexterity, and spatial relationship understanding. It is designed to be administered blindfolded and thus can easily be used with blind students. The TPT differentiates between adults who are blind with no known neurological involvement from those with blindness associated with neurological involvement (Bigler & Tucker, 1981).

The Tactual Formboard Test (TFBT) is a more recent adaptation of the TPT and is a part of the Neuropsychological Assessment of Adults with Visual Impairment (NAAVI), which is for individuals ages 16 and older (Gallagher & Burnham, 2017). Based on normative data collected from adults in Michigan, the TFBT differentiates between blind adults with a neurological disorder history or very low birth weight and those without such histories. Performance on the various trials of the TFBT provides information on tactile discrimination, spatial relations, spatial learning and memory, sustained attention, and planning skills.

The NAAVI (Gallagher & Burnham, 2017) also includes the Digit Symbol, Block Design, Object Assembly, and Pattern Board subtests from the Haptic Intelligence Scale for Adult Blind (Shurrager & Shurrager, 1964). The Digit Symbol subtest measures tactile discrimination, spatial learning and memory, processing speed, and spatial orientation. The Block Design subtest assesses tactile discrimination, spatial understanding, spatial construction, and pattern analysis. The Object Assembly subtest examines tactile-spatial understanding, spatial construction, problem-solving, and manual dexterity. The Pattern Board measures tactile discrimination and spatial memory.

The Tactual Span is a new measure of tactile working memory. It involves touching the examinee's fingers. The authors provide normative data for their group of young adults (Heled et al., 2020) and evidence for the validity of use in blind and low vision individuals (Heled & Oshri, 2021).

The Tactile Working Memory Scale (TWMS) is a rating scale designed to measure tactile working memory in congenitally deafblind individuals. The TWMS may also be used with "people with other disabilities who have difficulties using their vision and hearing effectively and who require bodily-tactile information for communication and cognitive development, such as children with complex communication support needs or children with brain related visual and hearing loss" (Nicholas et al., 2019, p. 59).

Additionally, Teachers of the Visually Impaired (TVIs) and Orientation and Mobility (O&M) Specialists may include tactile and spatial measures in their assessments. TVIs and O&M Specialists typically use criterion-referenced or informal tools, such as the Early Tactile

Learning Profile (Adkins et al., 2021). Observing and interviewing the TVI and O&M Specialist can provide helpful insights about tactile and spatial skills. Given limited access to specialized evaluation tools, psychologists often rely on interviews, observations, and informal assessment methods to assess tactile skills.

Processing Speed

If the referral questions include concerns about processing speed, verbal (oral) fluency measures can be analogous to visual motor processing speed. For example, the WIAT-4 Oral Word Fluency subtest, NEPSY-II Word Generation subtest, or DKEFS Verbal Fluency Test can be used. Another option is to use auditory continuous performance tests that include response time scores, such as the auditory T.O.V.A.

Areas to assess via rating scales or questionnaires

Sleep

Blind and low vision individuals are at increased risk of sleep disturbances and disruption of circadian rhythms (e.g., day/night rhythm) (Ingram et al., 2022). The questions from the BEARS Screening Tool for Assessment of Sleep in Children may be helpful to add to interviews with parents, caregivers, and youth (Owens & Dalzell, 2005).

Social-emotional development

As mentioned in the Language and Social Development and Mental Health and Emotional Development chapters, mental well-being and social-emotional development are important to evaluate. Blind and low vision students commonly have challenges with mastering social competency skills since most sighted people gain social skills through observation, experiences, and imitation. The degree to which students can gather and use sensory information related to social interactions effectively impacts how successful they may be in accurately reading the social environment, initiating interactions, and responding to others (Sacks & Page, 2017). The Social Skills Assessment Tool for Children with Visual Impairments (SSAT-VI: R) is a social skills checklist explicitly created for this population (Sacks & Wolffe, 2006).

Other rating scales that psychologists frequently use (e.g., BASC-3, BYI-2, or Piers-Harris 3) can be used when evaluating blind and low vision students. Refer to the Rating Scales chapter for considerations when using rating scales developed for the general population.

Adaptive functioning

Adaptive functioning is overall more impaired in groups of blind and low vision individuals (reviewed in Greenaway et al., 2017). On the ABAS-II, Greenaway et al. (2017) found that a group of high-functioning blind and low vision students (Verbal IQ > 80) had intact attention, memory, and working memory skills, whereas aspects of adaptive functioning (Home Living and Functional Academics) were low compared to the normative sample.

While norm-referenced adaptive functioning rating scales provide information about how students function relative to others their age, criterion-referenced checklists can inform whether students are progressing in skills at a pace similar to what is expected of other blind and low vision students. The Independent Living Skills (ILS) Checklist was designed to gather information on the progression of blind and low vision students' skills (Michigan Department of Education Low Incidence Outreach [MDE-LIO], 2018). Their grade-level guides may also be helpful in considering what adaptive behaviors the student can currently perform (MDE-LIO, n.d.). Please see the chapter on the diagnosis of intellectual developmental disorder for more information on assessing adaptive functioning.

Transition and vocational skills

Transition and vocational considerations also should be evaluated for students who are 14 or older. What's in Your Assessment Toolbox (Herlich & Zimmerman, 2024) lists career education criterion-referenced tools and checklists, including ones created for blind and low vision youth. Several options are available freely online. Project Aspiro (n.d.) has Career Education Competencies Checklist and Transition Competencies Checklists (student, teacher, and parent forms) that Dr. Karen Wolffe created; however, an updated checklist can be found in "Career Education" chapter of Volume II of the *Foundations of Education, Third Edition* (Wolffe, 2017). *Total Life Learning: Preparing for Transition* was developed for students from three to 22 with blindness, low vision, deafblindness, or multiple disabilities and includes a curriculum assessment tool (Bridgeo et al., 2014).

References

Adams, W., & Sheslow, D. (2021). *Wide Range Assessment of Memory and Learning* (3rd ed.). Pearson.

Adkins, A., Baltisberger, S., Kitchen, S., & Sewell, D. (2021). *Early Tactile Learning Profile*. Texas School for the Blind. https://www.tsbvi.edu/wp-content/uploads/assets/documents/statewide-resources/early-tactile-learning-profile-combined-fillable.pdf

Augestad, L. B. (2017). Mental Health among Children and Young Adults with Visual Impairments: A Systematic Review. *Journal of Visual Impairment & Blindness*, *111*(5), 411–425. https://doi.org/10.1177/0145482X1711100503

Bigler, E.D., & Tucker, D.M. (1981). Comparison of verbal IQ, tactual performance, seashore rhythm and finger oscillation tests in the blind and brain-damaged. *Journal of Clinical Psychology*, *37*(4), 849–851. https://doi.org/10.1002/1097-4679(198110)37:4%3C849::aid-jclp2270370430%3E3.0.co;2-3

Bridgeo, W., Caruso, B., D'Andrea, L., Fitzgerald, D., Fox, S., Gicklhorn, C., Mills, C., Summersby, S., & Zatta, M. (2014). *Total life learning: Preparing for transition*. Perkins School for the Blind. https://askhowe.perkins.org/sites/default/files/222482_EmGraph_PerkinsTL-FinalWeb.pdf

Bush, S. S., Ruff, R. M., Tröster, A. I., Barth, J. T., Koffler, S. P., Pliskin, N. H., Reynolds, C. R., & Silver, C. H. (2005). Symptom validity assessment: Practice issues and medical necessity NAN policy & planning committee. *Archives of Clinical Neuropsychology*, *20*(4), 419-426. https://www.nanonline.org/docs/PAIC/PDFs/NANsvt.pdf

Decker, S. L., Englund Strait, J., Roberts, A. M., & Ferraracci, J. (2018). Intellectual and neuropsychological assessment of individuals with sensory and physical disabilities and traumatic brain injury. In D. P. Flanagan & E. M. McDonough (Eds.), *Contemporary intellectual assessment: Theories, tests, and issues* (4th ed., pp. 662-683). The Guilford Press.

Gallagher, J. T., & Burnham, K. A. (2017). *Neuropsychological assessment of adults with visual impairments* [Appendix]. Stoelting.

Greenaway, R., Pring, L., Schepers, A., Isaacs, D. P., & Dale, N. J. (2017). Neuropsychological presentation and adaptive skills in high-functioning adolescents with visual impairment: A preliminary investigation. *Applied Neuropsychology: Child*, *6*(2), 145–157. https://doi.org/10.1080/21622965.2015.1129608.

Green, P. (2003). *Green's Word Memory Test for Windows: User's manual*. Green's Publishing.

Groenveld, M., & Jan, J. (1992). Intelligence profiles of low vision and blind children. *Journal of Visual Impairment & Blindness*, *86*(1), 68-71. https://doi.org/10.1177/0145482X9208600125

Guilmette, T. J., Sweet, J. J., Hebben, N., Koltai, D., Mahone, E. M., Spiegler, B. J., Stucky, K., Westerveld, M., & Conference Participants. (2020). American Academy of Clinical Neuropsychology consensus conference statement on uniform labeling of performance test scores. *The Clinical Neuropsychologist*, *34*(3), 437-453. https://doi.org/10.1080/13854046.2020.1722244

Heled, E., Rotberg, S., Yavich, R., & Hoofien, A. D. (2020). Introducing the Tactual Span: A new task for assessing working memory in the tactile modality. *Assessment*, *28*(3), 1018–1031. https://doi.org/10.1177/1073191120949929.

Heled, E., & Oshri, O. (2021). Validation of the Tactual Span in individuals with congenital and acquired blindness. *British Journal of Visual Impairment*, *41*(2), 328-342. https://doi.org/10.1177/02646196211044983

Herlich, S., & Zimmerman, S. (2024). *What's in your assessment toolbox?* California School for the Blind. https://docs.google.com/document/d/1QiKonP7gV_s_QfOcCSXTimo88vKdOFRW/pub

Ingram, D. G., Cruz, J. M., Stahl, E. D., Carr, N. M., Lind, L. J., & Keirns, C. C. (2022). Sleep challenges and interventions in children

With visual impairment. *Journal of Pediatric Ophthalmology & Strabismus*, *59*(2), 77–86. https://doi.org/10.3928/01913913-20210623-01

Korkman , M. , Kirk , U. , & Kemp , S. (2007). *NEPSY-Second Edition*. NCS Pearson.

Kúld, P. B., Kef, S., & Sterkenburg, P. S. (2021). Bibliometric mapping of psychological well-being among children with a visual impairment. *British Journal of Visual Impairment*, *39*(2), 131–146. https://doi.org/10.1177/0264619620915245

Lovett, B. J., Schaberg, T., Nazmiyal, A., & Spenceley, L. M. (2023). How do school psychologists address issues of effort, motivation, and honesty during evaluations? *Journal of Psychoeducational Assessment*, *41*(6), 603-618. https://doi.org/10.1177/07342829231175938

Lovett, B. J., Spenceley, L. M., & Lewandowski, L. J. (2020). Response validity in psychoeducational assessment: a primer for school psychologists. *Contemporary School Psychology*, 26, 279–289. https://doi.org/10.1007/s40688-020-00334-5

McCaffrey, R. J., Lynch, J. K., Leark, R. A., & Reynolds, C. R. (2020). *Pediatric Performance Validity Test Suite*. MHS Assessments.

Michigan Department of Education Low Incidence Outreach. (n.d.). *Independent living skills*. https://mdelio.org/blind-visually-impaired/expanded-core-curriculum/independent-living-skills

Michigan Department of Education Low Incidence Outreach. (2018). *Independent Living Skills (ILS) Checklist*. https://mdelio.org/sites/default/files/documents/BVI/ECC/ILS/Checklists/ILS_Checklist_2018.pdf

NCS Pearson. (2020). *Wechsler Individual Achievement Test* (4th ed.).

Nicholas, J. T., Johannessen, A. M., & van Nunen, T. (2019). *Tactile Working Memory Scale – a professional manual*. Nordic Welfare Centre. https://nordicwelfare.org/wp-content/uploads/2019/12/NWC-TWMS-Handbok-webb.pdf

Owens, J. A., & Dalzell, V. (2005). Use of the “BEARS” sleep screening tool in a pediatric residents' continuity clinic: a pilot study. *Sleep Medicine*, *6*(1), 63–69. https://doi.org/10.1016/j.sleep.2004.07.015

Project Aspiro. (n.d.). *Using this website to help children or youth*. http://projectaspiro.com/en/service-providers/using-this-site/Pages/Children-and-youth.aspx

Raiford, S. E., Drozdick, L., Zhang, O., & Zhou, X. (2015). *WISC-V technical report #1 expanded index scores*. Pearson Assessments. https://www.pearsonassessments.com/content/dam/school/global/clinical/us/assets/wisc-v/wisc-v-technical-report-1.pdf

Sacks, S. Z., & Page, B. (2017). Social skills. In M. Cay Holbrook, T. S. McCarthy, & C. Kamei-Hannan (Eds.), *Foundations of education, volume II: Instructional strategies for teaching children and youths with visual impairments* (3rd ed., pp. 752-802). AFB Press. https://www.aph.org/product/foundations-of-education-volume-ii-instructional-strategies-for-teaching-children-and-youths-with-visual-impairments/

Sacks, S. Z., & Wolffe, K. E. (Eds.). (2006). *Teaching social skills to students with visual impairments: From theory to practice*. AFB Press. https://www.aph.org/product/teaching-social-skills-to-students-with-visual-impairments-from-theory-to-practice/

Schrank, F. A., McGrew, K. S., & Mather, N. (2014). *Woodcock-Johnson IV Tests of Cognitive Abilities*. Riverside Publishing.

Sherman, E. M. S., & Brooks, B. L. (2015). *Memory Validity Profile*. Psychological Assessment Resources, Inc.

Sims, S. V., Dreyzehner, J. K., DeCarlo, D. K., & Lombardo, T. (2018). Mental health needs of blind and visually impaired youth and their families. *Journal of the American Academy of Child and Adolescent Psychiatry*, *57*(10), S96–S96. https://doi.org/10.1016/j.jaac.2018.07.403

Sweet, J. J., Heilbronner, R. L., Morgan, J. E., Larrabee, G. J., Rohling, M. L., Boone, K. B., Kirkwood, M. W., Schroeder, R. W., Suhr, J. A., & Conference Participants. (2021). American Academy of Clinical Neuropsychology

(AACN) 2021 consensus statement on validity assessment: Update of the 2009 AACN consensus conference statement on neuropsychological assessment of effort, response bias, and malingering. *The Clinical Neuropsychologist*, *35*(6), 1053–1106. https://doi.org/10.1080/13854046.2021.1896036

Wechsler, D. (2014). *Wechsler Intelligence Scale for Children* (5th ed.). Pearson.

Wolffe, K. E. (2017). Career education. In M. C. Holbrook, C. Kamei-Hannan, & T. McCarthy (Eds.). *Foundations of education, volume II: Instructional strategies for teaching children and youths with visual impairments* (3rd ed., pp. 831-874). AFB Press. https://www.aph.org/product/foundations-of-education-volume-ii-instructional-strategies-for-teaching-children-and-youths-with-visual-impairments/

27. Observations

Observations during the assessment or in natural settings like the classroom can help the examiner understand how vision impacts test results. Examining the type and pattern of errors on tests can help inform if performance difficulty is conceptual or related to vision. If a child takes a long time to look at materials or needs to work at a very close distance, this can indicate that vision may be impeding performance. Observations regarding visual fatigue, limitations in visual scanning, and level of self-advocacy are also integral for test interpretation and recommendations.

Observing the child's capability and independence with adaptive devices or technology is also important. For example, it can be helpful to see if an examinee is independent in using technology or devices or is dependent on prompts or assistance. Reluctance to use recommended devices can be a barrier to growth and learning. Also, consider whether the same or different accommodations or modifications are implemented across settings.

For school-age youth, over-reliance on a support person in the classroom is not uncommon. Observe whether the student initiates work or waits to be prompted by an adult in areas such as organization of materials, planning for complex tasks, initiation in individual and group activities, socialization with peers, daily living skills, self-advocacy, and problem-solving in new environments (Engle et al., 2024).

References

Engle, J. A., Nguyen, M. T., Goodman, S. A., Evans, C., & Loftin, M. (2024). *Comprehensive evaluations of individuals with visual impairments*. American Printing House. CC-BY-NC-SA 4.0. https://sites.aph.org/wp-content/uploads/2024/04/2024-APH-Guidance-Document.docx

28. Tests Designed for Blind and Low Vision Students

Overview

None of the standard tests given in psychology practice have normative data for blind and low vision students. Blind and low vision children are a highly variable group (so we will likely never have such norms!). In addition, on an everyday basis, blind and low vision children are being compared to sighted peers.

Adapted versions of tests have been produced to facilitate access. Standardization was conducted on the original test kits; thus, the standard scores do not reflect performance utilizing the tactile, braille, or large print versions. Additional items may need to be collected to administer the adapted tests; thus, adapted manuals and guides need to be carefully reviewed in advance. The following are tests that are available with adapted materials.

Adapted tests

Woodcock-Johnson IV (WJ IV)

The Woodcock-Johnson IV Tests of Cognitive, Achievement, and Oral Language (Form A) have adapted versions for large print and uncontracted and contracted braille (Unified English Braille-UEB with Nemeth and UEB Math/Science), which are available for purchase through the American Printing House for the Blind (APH, 2024). The user must have the original WJ IV kits to use the large print and braille versions as the adapted kits do not have all the materials needed for administration, such as audio CDs.

While the large print adaptation maintains the same test items and score clusters as the original WJ IV, changes were necessary on the braille adaptation to remove items or tests that were visually biased or when the test intent or task demands could not be maintained. The braille adaptation includes some modifications (e.g., tactile display), substitutions, and omission of items. The adapted versions of the tests use the general normative sample; however, “scoring tables and scoring software were developed specifically for the WJ IV-Braille, factoring in new clusters and item deletions and substitutions” (Jaffe, 2017, p. 27). Use the scoring software provided on the USB stick that comes with the braille adaptation kit.

To prepare for administration, read the *Woodcock-Johnson IV Braille Adaptation Administration Guide and Resource Manual* (Jaffe, 2017), and review the webinar Using a Team Approach in Evaluating Students w/ Visual Impairments Using WJ-IV Braille Adaptation (Jaffe, 2022b) and accompanying handout (Jaffe, 2022a). The braille adaptation of the WJ IV must be administered and interpreted by an examiner team that includes a qualified primary examiner who is competent in administering the WJ IV to sighted individuals and an ancillary examiner who is competent in braille, Nemeth, and impacts of visual impairment on development and functioning (Jaffe, 2017). Jaffe recommends that "the examiners should have completed at least two practice administrations with individuals who are blind before administering the WJ IV-Braille for the purpose of using the scores and interpreting the results" (2017, p. 8). Using a team approach to testing braille readers is recommended for all of the following adapted tests.

Wide Range Achievement Test, Fifth Edition (WRAT5)

The Wide Range Achievement Test, Fifth Edition (WRAT5) is available in braille (UEB with Nemeth) and large print (APH, 2024). The user must have the original WRAT5 kit to use the large print and braille versions. APH's Product Manager for Tests and Assessments shared,

> The WRAT5 has not been normed to the

> VI population. The validity is largely maintained due to the process in which the adaptation was done. Print based questions were directly reproduced in either braille or large print. For questions that included visual components, best efforts, guided by BANA [Braille Authority of North America] rules for tactile graphics, were made to maintain the integrity of the questions. Questions that could not be meaningfully converted to tactile graphics were removed. (L. Randles, personal communication, February 24, 2022)

While the adapted WJ IV kits use Form A for the Tests of Achievement, the blue and green forms are available in the adapted kits for the WRAT5.

KeyMath3 Diagnostic Assessment

The KeyMath3 Diagnostic Assessment is

available in uncontracted braille, contracted braille, and large print (APH, 2024). The uncontracted and contracted braille adaptations are available in UEB with Nemeth while the UEB with UEB math/science technical braille code adaptation is available only in contracted form. The user must have the original KeyMath3 kit to use the large print and braille versions.

Boehm-3: Test of Basic Concepts

The adapted versions of the Boehm-3: Test of Basic Concepts do not require the original test kit (APH, 2024). Standardized scoring is not an option. All the materials needed for administration are included in the adapted kits. The Boehm-3 K-2 Big Picture Kit and Boehm-3 K-2 Tactile Kit have protocols in English and Spanish. The Boehm-3 K-2 parent report is available in English and Spanish.

Similarly, the Boehm-3 Preschool adapted test kits do not require the original test kit for administration. Boehm-3 Preschool Big Picture

Kit is available in English and Spanish while the Boehm-3 Preschool Tactile Edition is available in English. The Boehm-3 Preschool parent letter is available in English only.

Brigance Comprehensive Inventory of Basic Skills II (Brigance CIBS II)

The adapted criterion-referenced versions of the Brigance Comprehensive Inventory of Basic Skills (CIBS) II are available in uncontracted braille (UEB with Nemeth), contracted braille (UEB with Nemeth), and large print. The original Brigance CIBS II was created in 2010, including a criterion-referenced version and a standardized, norm-referenced version. Curriculum Associates stopped selling the standardized version in 2020 due to its age (T. Pica, personal communication, September 28, 2022). The original version of the Brigance CIBS II is needed and can be purchased from Curriculum Associates. The CIBS II examiner's manual will no longer be available for purchase once they sell out of their limited inventory.

The Brigance CIBS II braille adaptations include two supplemental teacher manuals that list administration notes and alternative assessments for tests A through L and tests M through R. For example, the examiner script was changed for some tests when the images were changed to different shapes and textures in the tactile graphic adaptation. While the braille adaptations include tactile graphics and math manipulatives (i.e., flat plastic shapes), examiners may need to collect additional items to facilitate the administration of some of the tests.

Aprenda: La Prueba de Logros en Español, Tercera edición (Aprenda 3)

Per the Aprenda 3 website, this is an academic achievement test for Spanish-speaking students in kindergarten to 12th grade assessing language, reading, math, science, and social studies that is available in braille and large-print (Pearson, n.d.). While APH adapted the tests listed above, APH did not create the adaptation for the Aprenda 3.

Slosson Intelligence Test, Fourth Edition (SIT-4)

During the field testing and standardization of the Slosson Intelligence Test-Fourth Edition (SIT-4), various populations were included, such as individuals with blindness, learning disabilities, orthopedic impairments, behavioral and/or emotional disorders, and intellectual disability (Slosson et al., 2017). The SIT-4 is a verbal cognitive ability screening instrument, which may be used in conjunction with a battery of tests. The SIT-4 alone cannot be used as a sole criterion for differential diagnosis. The administrative guidelines were modified to accommodate special populations including blind students; however, these are not standardized alterations but are accommodations provided for optimal results (e.g., using raised stickers that add a tactile component to a task that originally involved counting pictures) (S. Slosson, personal communication, June, 7, 2021).

Tests Created for Blind and Low Vision Youth

INSITE Developmental Checklist, Third Edition

The Assessment of Developmental Skills for Young Children with Sensory Impairments and Additional Disabilities: Instruction Manual for the INSITE Developmental Checklist, Third Edition contains the checklist and instructions for scoring and reporting and has been revised with updated information about evaluating, establishing goals, and planning early intervention (Dennison & Wakins, 2024). The INSITE Developmental Checklist is a criterion-referenced assessment tool that evaluates gross motor, fine motor, self-help, cognition, social, emotional, communication, vision, auditory, and tactile development in children with sensory impairments and additional disabilities from birth to age six. It is appropriate to use with individuals with multiple disabilities who are functioning at an earlier developmental level than their chronological age. Many items must be collected in order to administer the test. The manual provides a list of suggestions for materials. The INSITE Developmental Checklist Test Booklet 2024 Edition includes the checklist, quick administration instructions, and scoring and reporting forms.

Oregon Project for Preschool Children who are Blind or Visually Impaired, Seventh Edition

The Oregon Project for Preschool Children who are Blind or Visually Impaired, Seventh Edition is also a criterion-referenced assessment tool with behavioral statements in developmental sequence from birth to age six in the areas of cognition, language, social, vision, compensatory, self-help, fine motor, and gross motor (Southern Oregon Education Service District, n.d.). This seventh edition is fully online, including the manual, skills inventory assessment, and curriculum. Evaluation teams may choose to administer the Oregon Project together or select different portions for different specialists to administer and collaborate in interpreting and reporting the student's performance.

Neuropsychological Assessment of Adults with Visual Impairments (NAAVI)

As mentioned in the Important Areas to Assess chapter, the NAAVI was developed to assess blind and low vision individuals ages 16 to 70 and older (Gallagher & Burnham, 2017). The NAAVI includes 10 subtests: Auditory Cancellation Test, Michigan Mathematics Test for the Blind, Rey Auditory Verbal Learning Test, Tactual Formboard Test, Pattern of Search Test, Adapted Token Test, Pattern Board Test, Digital Symbol, Tactile Block Design, and Object Assembly. Normative data was collected for the NAAVI; however, the sample was limited to individuals in Michigan. While practitioners may cautiously reference the normative information, the test provides valuable clinical data about the examinee's neuropsychological skills, including executive functioning, reasoning, spatial processing, and memory. Performance on the NAAVI can help to inform recommendations for academics and vocational needs.

References

American Printing House for the Blind. (2024). *The 2024-2025 catalog*. https://www.aph.org/app/uploads/2024/07/2024-2025-APH-Products-Catalog-accessible-UA.pdf

Dennison, E., & Watkins, S. (2024). *Assessment of developmental skills for young children with sensory impairments and additional* *disabilities: Instruction manual for the INSITE developmental checklist* (3rd ed.). HOPE Inc.

Jaffe, L. (2017). *Woodcock-Johnson IV – braille adaptation: Administration guide and resource manual*. American Printing House for the Blind.

Jaffe, L. (2022a, January 27). *Using a team approach in evaluating students with the Woodcock Johnson IV braille adaptation* [Handout]. American Printing House for the Blind. https://aph.nyc3.digitaloceanspaces.com/app/uploads/2022/01/27080846/Using-a-Team-Approach-When-Evaluating-Students-with-WJ-IV-Braille-Adaptation.pdf

Jaffe, L. [APH – American Printing House for the Blind]. (2022b, February 2). *Using a team approach in evaluating students with visual impairments using WJ-IV braille adaptation* [Video]. YouTube. https://youtu.be/2dmzF6hPwbM?si=oExJ5pHiAlWE2dPW

Gallagher, J. T., & Burnham, K. A. (2017). *Neuropsychological assessment of adults* *with visual impairments* [Appendix]. Stoelting.

Pearson. (n.d.). *Aprenda: La Prueba de Logros en Español, Tercera edición*. https://www.pearsonassessments.com/store/usassessments/en/Store/Professional-Assessments/Academic-Learning/Aprenda%3A-La-Prueba-de-Logros-en-Espa%C3%B1ol-%7C-Tercera-edici%C3%B3n/p/100000585.html?tab=product-details

Schrank, F. A., McGrew, K. S., & Mather, N. (2014). *Woodcock-Johnson IV*. Riverside.

Slosson, R. L., Erford, B. T., Larson, S. L., & Slosson, S. W. (2017). *Slosson Intelligence Test Fourth Edition SIT-4 for children and adults: Administration manual*. Slosson Educational Publications, Inc.

Southern Oregon Education Service District. (n.d.). *The Oregon Project*. https://www.soesd.k12.or.us/or-project/

29. Rating Scales

Available scales

Numerous informal questionnaires, checklists, and rating scales were created for blind and low vision individuals. While these measures may not produce standardized scores, the qualitative information obtained may help develop meaningful goals and understand the scope and sequence of skills. Examples include the Social Skills Assessment Tool for Children with Visual Impairments (SSAT-VI: R) (Sacks & Wolffe, 2006), Independent Living Skills (ILS) Checklist (Michigan Department of Education Low Incidence Outreach [MDE-LIO], 2018), and *Total Life Learning: Preparing for Transition* (Bridgeo et al., 2014).

The SIB-R (a measure of adaptive functioning) has a Short Form for the Visually Impaired. This version removed irrelevant items from the SIB-R. However, it was published in 1997, so it is now quite outdated. In addition, coverage of the full range of daily living skills is limited.

Instructions for raters

For items that assume vision on standardized rating scales, ask raters to rate according to the student's performance with assistive technology or adapted materials or according to the intent of the question rather than the specific example. Responses to such questions should be according to the adapted expectations due to vision. Consider the student's mode of output (e.g., brailling or typing) for items about written work. For instance, on a scale of executive functioning, "work is sloppy" is intended to reflect attention to detail and care for presentation. For items inquiring about eye contact, consider rating the item based on the student's whole-body orientation toward the speaker. For items involving directed vision attention, such as looking before crossing the street, reflect on the student's safety skills for completing street crossings, such as analyzing the environment auditorily, like listening to oncoming traffic.

Examples of items that assume vision:

- Written work is poorly organized.
- Work is sloppy.
- Has poor handwriting.
- Makes careless mistakes.
- Look at other people's faces when they are talking to them.
- It looks both ways when crossing the street.
- Writes own name.

References

Bridgeo, W., Caruso, B., D'Andrea, L., Fitzgerald, D., Fox, S., Gicklhorn, C., Mills, C., Summersby, S., & Zatta, M. (2014). *Total life learning: Preparing for transition*. Perkins School for the Blind. https://askhowe.perkins.org/sites/default/files/222482_EmGraph_PerkinsTL-FinalWeb.pdf

Michigan Department of Education Low Incidence Outreach. (2018). *Independent Living Skills (ILS) Checklist*. https://mdelio.org/sites/default/files/documents/BVI/ECC/ILS/Checklists/ILS_Checklist_2018.pdf

Sacks, S. Z., & Wolffe, K. E. (Eds.). (2006). *Teaching social skills to students with visual impairments: From theory to practice*. AFB Press. https://www.aph.org/product/teaching-social-skills-to-students-with-visual-impairments-from-theory-to-practice/

30. Assessment in Children with Severe Cognitive and Motor Disabilities

The challenge

Some blind and low vision children also have severe cognitive impairments. These children may not be able to complete typical standardized testing as most standardized tests designed for school-age children are not appropriate for children functioning at an early developmental level.

Some blind and low vision children also have motor impairments, which limit their ability to use their hands to point, write, pick up, or manipulate objects. To properly assess these children, you must carefully plan and adapt your assessment.

Standardized and non-standardized assessment

To learn more about adapting your assessment for children with severe cognitive and motor disabilities, please see the e-book – Beyond the WISC (Engle, 2019). The e-book suggests that you try to do an age-appropriate standardized assessment measure whenever possible, with appropriate adaptations (Plan A). Choosing a measure that spans a wide age range, such as the Stanford-Binet-5, can be helpful. However, it is important to carefully match the test expectations with the child's capabilities. For example, the Stanford-Binet-5 does not adequately separate visual from verbal tests, which can make it problematic for use in the blind and low vision population. For those students who cannot complete any of the standardized measures or for those who score at the "floor" of the standardized measures, it can be helpful to use a measure of early development, such as the Bayley-4 (Plan B). For those who cannot complete a developmental measure or where the measure is not capturing their capabilities, examiners may want to use an alternative, creative approach to assessment (Plan C). Plan C would include careful observation, detailed interviewing, criterion-referenced tests (e.g., developmental measures), and individualized structured activities.

Important areas to assess

When completing these assessments, consider what supports exist to stimulate the student's motivation, curiosity, and engagement. The following questions adapted from the California School for the Blind's "Frequently Asked Questions" might help guide your assessments (n.d.).

- What promotes the student's engagement and interest?
    - What gains and maintains the

    - student's attention?
    - What materials, activities, or people help to engage the student?
    - What is the student's stamina like? What is an appropriate expectation for the student's sustained engagement?
- What are the student's sensory preferences?
    - How does the student explore new objects?
    - How does the student react to assistance or prompts (verbal, physical, or both simultaneously)?
    - How does the student respond to familiar and unfamiliar environments?
    - How does the student engage in play?
- How are basic wants and needs communicated?
    - How does the student respond to interaction and communication attempts?
    - What supports are needed for the student to indicate a choice?
    - How does the student express feelings?
- How does the student participate in daily

routines?

    - Does the student help in any small way such as holding an arm out while being dressed or opening mouth in anticipation of oral feeds?
    - Does the student anticipate any daily routines?

- What types of environmental factors support the student's learning?
    - What is the student's preferred position to promote engagement?
    - How is information best presented to promote learning?
    - Are staff trained to fade prompting as the student progresses?

Developmental assessment tools to consider

INSITE Developmental Checklist, Third Edition

As mentioned in the Tests Designed for Blind and Low Vision Students chapter, the INSITE Development Checklist is a criterion-referenced evaluation tool that evaluates various areas of development in children with sensory impairments and additional disabilities from birth to age six (Dennison & Wakins, 2024). The checklist includes a column with notes for considerations for children with complex needs, including motor and sensory impairments. The INSITE Developmental Checklist can be used with students functioning at an earlier developmental level than their chronological age.

Early Tactile Learning Profile

Early Tactile Learning Profile is a free observational checklist of tactile skills for individuals who are chronologically or developmentally functioning between birth and five years (Adkins et al., 2022). This assessment tool can help evaluation teams to recognize and support the tactile skills needed for learning and literacy. Literacy is defined more broadly than braille reading and writing, including "non-traditional" literacy with real objects, textures, and tactile symbols.

Child-guided Strategies: The van Dijk Approach to Assessment for Understanding Children and Youth with Sensory Impairments and Multiple Disabilities

While Child-guided Strategies: The Van Dijk Approach to Assessment for Understanding Children and Youth with Sensory Impairments and Multiple Disabilities (Nelson et al., 2009) is out of print, the American Printing House for the Blind (APH, 2022) has posted the evaluation forms for free. This approach encourages the examiner to look at the processes through which the child learns rather than evaluate discrete skills. The foundation of the assessment relies on the assessor establishing a relationship with the child. The child's interests and abilities determine what materials are used to promote the child's engagement. The report focuses on identifying strengths and next steps in development. Child-guided strategies are "conversational." Establishing an interactive routine is important. To do this, the assessor may imitate what the child is doing then add new information. Communicative signals are elicited by stopping the routine and waiting for a signal from the child indicating a desire for continuation. Excellent video examples (van Dijk, 2014) of this approach are available. The article "A Framework for Understanding Young Children with Severe Multiple Disabilities: The Van Dijk Approach to Assessment" provides further information, including a table of the questions about biobehavioral state, orienting response, learning channels, approach-withdrawl, memory, interactions, communication, and problem-solving that are the focus of the assessment (Nelson et al., 2002).

Sensing and Learning

Similarly, the Sensory Learning Kit (SLK) – Guidebook and Assessment Forms has been discontinued and replaced by *Sensing and Learning* (Smith & Chambers, 2023). The SLK was designed for learners with significant challenges who have motor, sensory, communication, and cognitive impairments. *Sensing and Learning* is a guidebook that expanded on the SLK concepts and integrated feedback from teachers of the visually impaired. While the SLK included various items, APH sells the *Sensing and Learning* as a standalone book but links optional items for the activities described in the book.

The sensorimotor learning model is designed to help learners move through hierarchical states/stages. This model recognizes that some children spend periods of time in what Smith calls "extended states" where they are sleepy or agitated. The goal would be to help them achieve and maintain focus on objects to promote learning. A series of objects are available that help stimulate the child's various senses to see what they respond to. The next goal would be to help the child explore objects through their available senses. This would then move to understanding the function of objects and then learning to label objects. The goal is developing “Coherence” – the feeling that you understand what is going on in your environment. For more information, see a video with Millie Smith: “Strategies for Assessing and Teaching Students with Visual and Multiple Disabilities” (Smith, 2016).

Functional Scheme

Functional Scheme (Nielsen, 2003) is an assessment appropriate for individuals are chronologically or developmentally functioning between 0 and 48 months. This assessment tool was developed to evaluate many developmental areas in children and adults with multiple disabilities. The 20 areas measured include gross movement, fine movement, mouth movement, visual perception, auditory perception, haptic-tactile perception, smell and taste, spatial perception, object perception, verbal language, nonverbal language, language comprehension, social perception, emotional perception, play and activities, toileting skills, undressing and dressing skills, personal hygiene, and eating skills. The skills in each area are in three- to six-month increments from birth to age four. Learn more about *Functional Scheme* in a video with Patty Obrzut (2016).

Additional evaluation tools that may be appropriate for students with multiple disabilities are listed in the section on assessing students with deafblindness.

References

Adkins, A., Baltisberger, S., Kitchen, S., & Sewell, D. (2022). *Early Tactile Learning Profile*. Texas School for the Blind and Visually Impaired. https://www.tsbvi.edu/wp-content/uploads/assets/documents/statewide-resources/early-tactile-learning-profile-combined-fillable.pdf

American Printing House for the Blind. (2022, February 3). *Child-guided strategies: The van Dijk approach to assessment*. https://www.aph.org/product/child-guided-strategies-the-van-dijk-approach-to-assessment/

California School for the Blind. (n.d.). *Frequently asked questions (FAQs) – Consultation*. https://www.csb-cde.ca.gov/outreach/assessmentcenter/faqs.aspx#multidisciplinaryassess

Engle, J. (2019). *Beyond the WISC: Psychological assessment of cognitive functioning in special populations*. Pressbooks. https://pressbooks.bccampus.ca/jengle/

Nelson, C., van Dijk, J., McDonnell, A. P., & Thompson, K. (2002). A framework for understanding young children with severe multiple disabilities: The van Dijk approach to assessment. *Research and Practice for Persons with Severe Disabilities*, *27*(2), 97-111. https://doi.org/10.2511/rpsd.27.2.97

Nielson, L. (2003). *Functional schemes*. Lilliworks Active Learning Foundation. https://www.lilliworks.org/products/p/functional-scheme

Obrzut, P. (2016, December 1). *Functional scheme* [Video]. Texas School for the Blind and Visually Impaired. https://library.tsbvi.edu/Player/13415

Smith, M. (2016, November 15). *Strategies for assessing and teaching students with visual and multiple disabilities*. Perkins. https://www.perkins.org/resource/strategies-assessing-and-teaching-students-visual-and-multiple-disabilities/

van Dijk, J. (2014, July 8). *Child-guided assessment*. Perkins. https://www.perkins.org/resource/child-guided-assessment/#transcript

31. Assessment of Deafblind Children

Key points

Deafblindness should not be seen as simply the combination of visual and hearing impairments, but rather as a complex issue with cumulative needs that require special attention when a student has both types of impairment. These additional needs may not be present when dealing with only one sensory modality impairment.

Keep in mind that a student does not have to be completely or legally blind and deaf to meet the requirements for deafblindness. A student with reduced sight and hearing may be eligible for special education as deafblind if the student has significant communication, developmental, and educational needs that require special education programs to address the vision and hearing needs (e.g., has needs beyond programs for students who are only deaf or programs for students who are solely blind) per the United States Individuals with Disabilities Education Act Section 300.8 Child with a disability (c) (13) (2004). Determining eligibility may be more straightforward for students with severe vision and hearing impairments.

Teams may question whether students with low vision or hearing differences qualify as being eligible under the category of deafblindness. Even if a student appears to be coping fine, audiograms can be misleading and lead people to believe that the student can hear and *understand* effectively. When "high frequencies (above 1000Hz) are compromised, [the student may not have] access to high-frequency sounds is what makes speech intelligible. Examples of high-frequency speech sounds are unvoiced s, f, th, k, and t, which not only provide us with the difference between words like 'bat' and 'back' but are also essential for plurals and tense markers. This is also even MORE critical for a youngster learning language. [In addition,] aided responses can provide a false representation of what an individual can hear. [Although] they hear the sounds provided in the sound field, it is not exactly what is required when attaching meaning to hearing words and language" (T. Kuerbis, personal communication, October 26, 2021). Being able to hear a sound does not necessarily equate to making sense of the sound.

The combination of limited access to visual and auditory environmental information for students who are deafblind results in fewer chances for incidental learning, which is the natural learning that occurs through observing and interacting with the everyday environment. Therefore, students with dual sensory impairments require hands-on, experiential learning opportunities to gain a meaningful understanding of new concepts.

Considering the wide range of strengths and needs among students with deafblindness, it can be difficult to identify the most suitable tools for evaluating all deafblind students. The best tools for a particular case would depend on factors such as the student's access to visual and auditory information with accommodations, assistive devices, and/or intervener support.

Consult with the Teacher of the Visually Impaired (TVI), Teacher of the Deaf (ToD), Teacher of the Deafblind (TDB), Speech Language Pathologist (SLP), and intervener throughout the evaluation process (i.e., during planning, testing, and interpreting evaluation results). Provide parents, caregivers, and family members opportunities to give input on how the student functions in various environments and with different people. In addition, consult with other evaluation team members who are involved. Orientation and Mobility (O&M) specialists, Occupational Therapists (OTs), Physical Therapists (PTs), Augmentative and Alternative Communication (AAC) specialists, Adapted Physical Education (APE) specialists, and Assistive Technology (AT) specialists are some of the possible additional evaluators who may support a deafblind student.

Collaborate closely with the TVI, ToD, and/or TDB to adequately accommodate the student's hearing and vision needs to set up the environment optimally. Team members, such as the ToD, TDB, SLP, and intervener, must be consulted to clarify communication needs.

When direct assessments are conducted, at least one adult who knows the student well and understands their communication should be present if the examiner is not proficient in the examinee's mode of communication. An intervener who has experience working with the examinee is a great option. Interveners are paraprofessionals who provide consistent one-to-one support to help students with deafblindness gain access to information and communication and facilitate the development of their social and emotional well-being. In educational environments, they are typically paraeducators who work under the direction of the classroom teacher and ToD or TDB. An intervener should be viewed differently from a typical instructional aide or paraprofessional and utilized during the evaluation to gather meaningful information.

Evaluating a student through an intervener who is using American Sign Language (ASL) highly impacts the results of your evaluation. American Sign Language has its own unique grammar and syntax, and interpreting changes how the instructions are given. You may end up accidentally testing the skills of the intervener more than you are testing the child. In addition, include a validity statement in your report about giving the evaluation through an intervener who was interpreting for the child.

Day and colleagues (2015) provided guidance on using interpreters with the WISC-V for testing deaf or hard-of-hearing youth. Their considerations for the use of interpreters apply to deafblind children and their interveners as well.

> Considerations to keep in mind include understanding the impact that an interpreter can have on the testing process and ensuring that interpretation does not inadvertently provide a correct response, simplify the task, or change the intended nature of the task. It is important to clarify whether the role of the interpreter is to interpret the child's exact response,

> modify the response to accommodate for cultural differences, or fill in any gaps to clarify the response. (Day et al., 2015, p. 2)

Standardized assessments may not be appropriate to interpret quantitatively for deafblind students. No standardized assessments are valid and reliable for all deafblind individuals since significant variability exists within the deafblind population. In addition, the low incidence nature of deafblindness poses challenges in developing standardized assessments.

Test the limits with accommodations and/or modifications to better understand the student's functioning while minimizing the impacts of the dual sensory loss on the student's ability to show what they know. When the task demands are modified and subsequently changes the construct the test intended to measure, scores should not be reported. If standardized assessments are administered, qualitative interpretation of the results may be more appropriate than quantitative reporting. A dynamic, authentic assessment style is often recommended over a standardized method. For example, an examiner may start with standardized testing procedures and then test the limits with further inquiry or trials to explore how the student approaches a task or demonstrates their understanding with different levels of support. The examiner must consider the cause and validity of any assessment results (including rating scales) and be cautious when interpreting results. Determine if the results are representative of the student's functioning or more of a reflection of needs and considerations for support stemming from deafblindness. Include statements regarding the validity of the results given the needed break from standardized procedures to facilitate the student's engagement with testing. While the test scores might provided limited utility, the clinical insights gleamed from carefully observing the student's process of working on task are valuable. Use the evaluation as an opportunity to determine what best promotes motivation, engagement, participation, and independence.

Cognitive Assessment of Children Who Are Deafblind: Perspectives and Suggestions for Assessments is a great resource that highlights the importance of using multi-method, multi-informant, ecological, and dynamic assessment approaches that includes collaboration with family members and a multidisciplinary team (Nicholas, 2020). Consider the following questions from this article to guide the evaluation:

- “How information is best communicated to promote learning;
- How does perceptual-cognitive characteristics in the different modalities help promote the child’s multisensory learning;
- How does the child’s spatial ability in the visual or tactile modality affects his/her explorative activity, navigation, or mobility training (spatial cognition);
- How does the child stays focused and problem solve when a new or unfamiliar task is presented (attentional switching);
- How many repetitions of information does it take for the child to acquire new

information (working memory);
- How does the child learn to remember specific personal episodes/experiences (autobiographical memory);
- How does the child's ability to generate a plan affects his/her functions in everyday life (cognitive planning);
- How effectively does the child use feedback from the environment (cognitive flexibility);
- How does the child allow for change in perspectives in order to reach a goal (goal-oriented); and
- What is the child aware of when facing a task and processing the information related to it (metacognitive knowledge)" (Nicholas, 2020, pp. 4-5).

Developmental tools to consider

- Home Talk is "an assessment tool for parents and care providers of children who are deafblind and who have other disabilities…HomeTalk can provide a broad picture of your child's skills, special interests, and personality." This is a good questionnaire tool to have parents complete or to complete with parents through an interview.

- How We All Learn (Campano, 2016): "This workbook is not an assessment tool, but rather a structured tool to provide technical assistance for educators and related service providers working with students who do not have a formal communication system." This tool would be great for you and the evaluation team to use to guide your assessment. Outcomes include:
    - Identify how the student experiences and relates to the world around them, in order to identify how the student learns.
    - Identify and provide recommendations on five activities to begin the process of developing pre-symbolic and/or symbolic communication.
    - Find ways to best engage the student to be an active participant.

    - Note: Google Docs muddles up original formatting from Word doc. It is better to download and view this in Word.
- Communication Matrix: The Communication Matrix has created an assessment tool to help families and professionals easily understand the communication status, progress, and unique needs of anyone functioning at the early stages of communication or using forms of communication other than speaking or writing. This is available in multiple languages.
- Infused Skills Assessment.pdf from TSBVI: The Basic Skills Infused Skills Assessment is a very effective tool for analyzing the strengths and weaknesses of students with visual impairments who may also have cognitive and behavioral challenges. This assessment begins at a developmentally young, non-verbal skill level and progresses up to higher cognitive functions while remaining appropriate for students in life skills programming. This assessment provides an informal measure

of the following areas.

  - Social Communicative Interactions
  - Emotional Development
  - Senses/Motor Skills
  - Basic Concepts
  - Representation and Cognition.
- READY Tool: Readiness Evaluation of Transition to Adulthood for Deaf-Blind Youth (National Center on Deaf-Blindness) is designed to help transition teams of deafblind individuals at different ages to create an action plan.
  - READY Tool: Prior to Age 14
  - READY Tool: Age 14 to 17
  - READY Tool: Age 18 to 21
  - READY Tool: Age 22 to 26

Additional evaluation tools that may be appropriate for deafblind students are listed in the section on assessing students with multiple disabilities.

Resources

A School Psychologist’s Guide to Deafblindness: Identifying & Supporting Students with Combined Hearing-Vision Loss (Wolford, 2016): “This guide [from the Ohio Center for Deafblind Education] supports the work of school psychologists by presenting research-based knowledge that informs effective assessment and educational planning for students with deafblindness. It briefly tells what deafblindness is, how many students it affects, how deafblindness impacts students’ learning, and how a school psychologist can help students with combined hearing-vision loss participate fully in their education” (p. 2). Appendix C of Ohio Center for Deafblind Education’s document lists tests for possible use for evaluations of students with deafblindness.

An Assessment Procedure for Students Who Are Deafblind with Significant Additional Disabilities (Blaha & Hurst, 2023): This paper from the Texas Deafblind Project for TSBVI is intended for team working with children who ar deafblind and have co-occuring disabilities (e.g., medically fragile or with orthopedic impairments) that impact their engagement in learning activities. An interview tool and developmental chart with possible impacts from deafblindness are included.

Psychological assessment of individuals with deafblindness (Einarsson et al., 2020): The Nordic Welfare Centre published this report "to help professional assessing cognition-and thus be able to elaborate adapted strategies so that people with congenital deafblindness can develop their full potential" (p. 5).

Guidelines for Assessment of Cognition in Relation to Congenital Deafblindness (Nordic Centre for Welfare and Social Issues, 2014): "These guidelines are written for professionals involved in the assessment of persons with congenital early deafblindness and cover deafblind-specific aspects. The general guidelines include a model of cognition/development and assessment, addressing the issue of why and what to measure. We have included examples from our different sub-projects, which include specific target descriptions, procedural descriptions, and/or stepwise prescriptions. Hopefully, these guidelines will be helpful in every-day assessments of cognition in relation to deafblindness with the focus on potential and possible fulfilment of potential" (p. 5).

Assessing Communication and Learning in Young Children Who are Deafblind or Who Have Multiple Disabilities (Rowland, 2009): "This guide is intended for all professionals who are responsible for assessing and developing interventions for young children who are deafblind. The contents should also be helpful for families of these children who seek to become actively involved in educational planning. Some families may use the information to better understand their important role in the assessment process, while other families may want to share this guide with professionals who have been asked to evaluate their children. The strategies and materials described here are applicable to many children who have multiple disabilities as well as to children who are deafblind" (p. 3).

Assessment – Chapter 3 from the

Deafblindness Educational Service Guidelines (Riggio & McLetchie, 2008) provides guidance on 7 issues relevant to evaluating students with deafblindness. The entire Deafblindness: Educational Service Guidelines resource is available online.

- “Issue I. Assessors/evaluators should have knowledge of the impact of deafblindness on learning and have the expertise to select, administer and interpret a variety of assessment approaches and data.
- Issue II. Assessors/evaluators should understand and use a variety of communication forms. They should have the ability to interpret and respond to students’ forms, reasons and meanings of communication.
- Issue III. Assessment and evaluation of students who are deafblind should be a collaborative, comprehensive, and ongoing process that includes authentic assessments.
- Issue IV. Assessments and evaluations should occur across a variety of natural environments (home, community, school)

to determine students' functional abilities (communication, selfcare, vision and hearing, orientation and mobility).
- Issue V. Evaluation of literacy and numeracy abilities should be included in the assessment process.
- Issue VI. Assessors/evaluators should actively involve families in the assessment process, and give consideration to family cultures and values.
- Issue VII. Assessment/evaluation should lead to ongoing planning and implementation of the individualized education program" (p. 36).

Essential Tools of the Trade for Teachers of Students who are Deafblind: A How-To Guide for Completing Evaluations (Bennett et al., 2022) provides ample guidance and examples for Functional Tactile-Bodily, Functional Vision, Learning Media, Communication (including the Functional Hearing), and Expanded Core Curriculum Evaluations. While other specialists (not psychologists) often conduct the specific assessments listed, the clear information, forms, and templates in this comprehensive guide are useful for psychologists to review to understand what type of background and sensory functioning information is vital to obtain before proceeding with the psychoeducational assessment. Some of the assessment tools and resources described may be used by a psychologist in collaboration with other evaluators. An updated version is anticipated by the end of 2024.

Open Hands, Open Access (OHOA): Deaf-Blind Intervener Learning Modules (National Center on Deaf-Blindness) are a national resource designed to increase awareness, knowledge, and skills related to intervention for students (ages 3 through 21) who are deaf-blind and being served in educational settings. The modules focus on various aspects of impacts on learning, communication considerations, ways to promote learning, and transitioning to adult life.

References

Bennett, K., Hamilton, S., Montgomery, C., Schultz, M., Sewell, D., Tiggs, S., & van den Tillaart, B. (2022). *Essential tools of the trade for teachers of students who are deafblind: A how-to guide for completing evaluations*. Texas School for the Blind and Visually Impaired.

Child with a disability, 34 C.F.R. § 300.8 (c) (2004). https://sites.ed.gov/idea/regs/b/a/300.8/c/13

Day, L. A., Adams Costa, E. B., & Raiford, S. E. (2015, September 4). *Testing children who are deaf or hard of hearing* (WISC-V Technical Report #2). NCS Pearson, Inc. https://www.pearsonassessments.com/content/dam/school/global/clinical/us/assets/wisc-v/wisc-v-technical-report-2.pdf

Nicholas, J. (2020). Cognitive assessment of children who are deafblind: Perspectives and suggestions for assessments. *Frontiers in Psychology*, 11, 571358. https://doi.org/571358.10.3389/fpsyg.2020.571358

PART V

INTERPRETING RESULTS, RECOMMENDATIONS, AND REPORT WRITING

32. Interpreting and Reporting Results

Integrating results

When looking at the direct testing results, it is important to go beyond the standardized test score numbers to look for meaningful information. Cross-validate testing results with observational, interview, and historical data**.** Consider records review, interviews, observations, rating scales, and checklists as data points for cognitive and processing skills. Use students' performance on standardized tests as data for determining what strategies and accommodations might be best for supporting their learning and daily functioning. Analyze the data beyond the scores. Focus on what fosters problem-solving, learning, and functional skills. The following questions may guide your analysis of the results.

- What information about the student's learning style can be determined from the testing performance?
- When comparing to previous evaluation results, what developmental growth over time does the student's performance indicate?
- What data from the test is reflective of the student's ability and not challenges stemming from visual impairment?
- How has the student's conceptual knowledge that has been impacted by visual impairment affected performance on specific test items?
- How does time influence the student's capabilities to perform the given task?
- When testing the limits, what accommodations or modifications allowed the student to demonstrate a skill?
- How do data from standardized testing, criterion-referenced testing, interviews, observations, and work samples compare?

For rating scales, if a scale includes items directly impacted by vision (e.g., related to eye gaze, pointing, or play imitation), consider whether or not it is appropriate to report scores for those scales. Some scales might be reported qualitatively while other scales without items impacted by visual items might be reported quantitatively.

Reporting results

While it is permissible to use tests normed on sighted individuals, remember to include statements that provide clarity regarding validity and limitations. The following topics are points to consider including in your validity statement.

- Whether standardized procedures were followed
- What specific test accommodations or modifications were utilized to reduce the impact of visual impairments on test performance
- How testing of the limits was conducted

Consider that difficulty with vision or the use of accommodations/modifications may have changed the nature of the task or made the task harder or easier. In most cases, it is appropriate to interpret the results of subtests with visual stimuli in a clinical/qualitative rather than quantitative manner. The student's performance on tests that include visual stimuli may be more appropriate to use to inform recommendations for accommodations or modifications in the classroom.

If deemed appropriate to report scores, keep in mind that students who are cognitively intact may score lower than their sighted peers since vision facilitates cognitive and language development. Scores may be conservative reflections of the student's abilities. It may be more meaningful to report testing results qualitatively rather than quantitatively as standardized assessments can mask students' true capabilities. Use confidence intervals of 90% or 95% when reporting scores.

Sample validity statements

It is always important in your reports to address any specific concerns you have about the validity of the assessment. Avoid blanket or generalized statements, but rather make them personal to the specific student.

Cross-battery assessment example:

Instruments designed for fully sighted individuals but used with blind and low vision students can be useful when interpreted by persons knowledgeable of the effects of visual impairment on cognitive development and test performance. The results of many norm-referenced tests standardized on sighted individuals are conservative indicators of the characteristics being measured. The results presented in this report were compiled from tests that do not share a common norm group; however, test results have been interpreted following the cross-battery approach and integrated with data from other sources including educational records, parent/teacher interviews, behavioral observations, work samples, and other test findings to ensure ecological validity. Standardization was followed for all test administrations, except for [document test accommodations and modifications]; performance was interpreted qualitatively instead of quantitatively where standardized procedures were broken and validity was compromised. The results provide a snapshot of current skills and knowledge and are deemed to be a meaningful characterization of [the student's] current performance. No single test or procedure was used as the sole criterion for classification, eligibility, or educational planning.

TBI example:

[The student] had a traumatic brain injury at [age], had to relearn all language following the injury, lacks [eye and/or field vision impacts], and cannot use [specific body part or side of the body]. No test exists that has been validated on a population of students with such a constellation of circumstances and injuries. The tests used for this assessment "assume" facility with skills that [the student] does not have and therefore become a measure of these skills rather than what was intended. For example, if a test requires speed and fine motor manipulation of blocks to assess perceptual reasoning, it will measure speed and fine motor skills as much as perceptual reasoning when [the student] attempts it. These factors were taken into careful consideration during assessment and interpretation. The goal of this assessment was to obtain a measure of [the student's] strengths and weaknesses with minimal interference from factors that are not under [the student's] control. Speed, fine motor skills, and vision requirements were minimized as much as possible. Observation, experience, and examples were given significant weight in addition to test score results.

33. Recommendations

Resources for brainstorming recommendations

When drafting the report and recommendations, consider "A Bill of Rights for All Children with Visual Impairment and their Families," which was created in 2019 by the Council of Schools and Services for the Blind (COSB) and the Association for Education and Rehabilitation of the Blind and Visually Impaired (AERBVI). Consider whether your evaluation and subsequent recommendations address the spirit of the rights described.

Careful training for paraprofessional staff is important to support the student's learning, development of independence, and integration into the school community. Fade adult support when possible and as appropriate. 19 Ways to Step Back is a helpful reference and reminder to foster the student's independence.

Consider utilizing the resources from the Michigan Independent Living Skills website to monitor and support the student's progress in adaptive daily living skills. The website contains checklists, video clips, five-minute activities, calendars of daily ILS tasks for home, and modules to help teachers easily set up lesson plans and ILS learning stations.

Practical Tips & Strategies for Supporting the Whole Child with Visual Impairments (CSB, 2021) is a handout that includes tips and strategies for promoting healthy behaviors and routines, facilitating learning, supporting mental health, and practicing your own self-care.

The following list of recommendations is intended to provide a starting point for considerations and is not a comprehensive list. These recommendations may not apply to all students and should be tailored to the specific student's needs with guidance from the TVI, O&M, and other evaluation team members.

- Express high expectations of the student's success while meeting them where they are at.
- Offer explicit teaching, particularly for social skills and executive functioning (e.g., organization, planning, time management).
- Provide concrete examples.
- Offer direct experiences, using real objects when possible.
- Provide opportunities for learning by doing and experiential learning to unify concepts.
- Allow for repetition of explanations or demonstrations of activities or concepts.
- Offer repeated practice opportunities.
- Give specific feedback, and emphasize positive reinforcement of effort. Encourage flexible problem-solving and perseverance. Reframe mistakes as opportunities for learning; promote a growth mindset.
- Collaboration is key among all service providers, educational team, and family.

Use of consistent language can help students to generalize skills to different settings.

- Develop a system or strategies to request or decline help.
- Allow for extended time for processing information or work completion.

References

Association for the Education and Rehabilitation of the Blind and Visually Impaired & Council of Schools and Services for the Blind. (2019). A bill of rights for all children with visual impairment and their families. https://aerbvi.org/wp-content/uploads/2019/05/TheBillofRightsforAllChildrenwithVisualImpairment.docx

34. Diagnostic Evaluations: Intellectual Developmental Disorder

DSM-5-TR

A diagnosis of intellectual developmental disorder according to the Diagnostic & Statistical Manual of Mental Disorders, Version 5, Text Revision (DSM-5-TR) requires impairment in one or more domains of adaptive functioning (Conceptual, Social, or Practical) in addition to low IQ. Furthermore, there must be a relationship between intellectual and adaptive deficits: "To meet diagnostic criteria for intellectual disability, the deficits in adaptive functioning must be directly related to the intellectual impairments described in Criterion A" (APA, p.38).

The challenge of evaluating adaptive functioning

Measures of adaptive functioning (e.g., ABAS, VABS) are not designed to differentiate between limitations in functioning arising from cognitive impairments and limitations arising from motor or sensory impairments. Many items on adaptive functioning measures will be inappropriate for children with motor or sensory impairments (e.g., "carries dishes to the sink" for those without the physical ability to lift dishes; "stays on sidewalk" in a child who is pushed in a wheelchair, "wipes up own spills" in a child who is not able to see the spill).

In addition, skills may develop at different times in blind and low vision children. A child who is blind will need to learn special skills to identify coins and keep track of different denominations of paper money. Thus, they are likely to learn this skill at an older age compared to a sighted child. Blind and low vision students with intact cognitive functioning are more likely than their sighted peers to be rated lower in adaptive functioning (Greenaway, et al., 2017). The difficulties are most pronounced in children with the more severe to profound visual impairment, though those with mild impairment also show difficulties relative to sighted peers (Bathelt et al., 2019).

The DSM-5 recognizes that scores are not the only consideration in evaluating adaptive functioning: "Adaptive functioning is assessed using both clinical evaluation and individualized, culturally appropriate, psychometrically sound measures… Additional sources of information include educational, developmental, medical, and mental health evaluations. Scores from standardized measures and interview sources must be interpreted using clinical judgment" (DSM-5, p.37). It is important to carefully consider all aspects of your assessment, and not rely too heavily on standardized measurements.

It is still important to use standardized measures of adaptive functioning. A standardized measure of adaptive functioning is best completed using an interview format (e.g., Vineland interview). If adaptive functioning is done in an interview format, you will better be able to understand which supports are in place due to motor or sensory impairments. Look at the manual for the adaptive functioning measure. Typically, the manuals will suggest that if a child is not capable of doing something due to a physical or sensory condition, the item must be scored as “0” but that you should take this into account in your interpretation. Do allow for a child’s use of sign language, braille, or adaptive equipment to communicate (if used independently and unprompted). This includes listening to audiobooks and screen readers for blind and low vision students (VABS-3 Manual, p.45). The ABAS manual does not discuss this topic, but a similar approach between the tests would be appropriate.

The challenge of measuring IQ

Standard IQ tests were not developed for use with blind and low vision children. For most tests (e.g., WISC-5) children with uncorrected visual impairments were excluded from the standardization sample, and are not included as a special group.

One of the reasons measurement of IQ can be challenging is that differences in concept development can impact performance on verbal IQ tasks. Furthermore, evaluation of verbal IQ can be particularly challenging in students who are English Language Learners or who have primary communication challenges. Some students are able to complete visual IQ tests, though in general these should be considered a minimum estimate of functioning.

Recommendation

When evaluating blind and low vision children, it is wise to be cautious about diagnosing intellectual developmental disorder. Be especially cautious in giving a diagnosis in young children. Sometimes there is a very clear case of intellectual developmental disorder, and in that case, a diagnosis should be made. For other students, it can be helpful to monitor their functioning over time, to see the progress they make with supports and intervention.

References

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). https://doi.org/10.1176/appi.books.9780890425787

Bathelt, J., de Haan, M., & Dale, N. J. (2019). Adaptive behaviour and quality of life in school-age children with congenital visual disorders and different levels of visual impairment. *Research in Developmental Disabilities*, *85*, 154–162. https://doi.org/10.1016/j.ridd.2018.12.003

Greenaway, R., Pring, L., Schepers, A., Isaacs, D. P., & Dale, N. J. (2017). Neuropsychological presentation and adaptive skills in high-functioning adolescents with visual impairment: A preliminary investigation. *Applied Neuropsychology. Child*, *6*(2), 145–157. https://doi.org/10.1080/21622965.2015.1129608.

35. Diagnostic Evaluations: Academic Development and Specific Learning Disorders

General recommendations for considering a diagnosis of a specific learning disorder

It is possible for blind and low vision students to have a specific learning disorder. To diagnose a specific learning disorder using the DSM-5-TR, vision must not be the *primary cause* of academic difficulty. Vision can be a contributing factor, just not the primary cause of the difficulty. It is possible that both the vision and learning issues may be related to the same underlying condition (e.g., a genetic or neurological disorder).

Evaluation for a specific learning disorder will involve looking at various data points (i.e., not just a single subtest) and integrating information from multiple sources. This should include curricular-based measurement, a review of work samples, and interviews with the student's team (Layton & Lock, 2001). For braille learners, the expected progression of numeracy, reading, and writing, are not the same as the progression of the same skills in sighted peers. When evaluating braille readers, speak with the student's TVI to find out if the student is on the expected developmental track.

To be comprehensive, assess the following cognitive and processing areas based on the referral. Assess to the extent possible that can be done validly given the student's level of access:

- Verbal intelligence: lexical knowledge, language development, listening abilities, general information
- Fluid reasoning: induction, quantitative reasoning, deductive reasoning
- Short-term memory: working memory, memory span, recognition
- Long-term memory: meaningful memory, free recall, associative memory, ideational fluency
- Auditory processing: phonetic coding, sound discrimination, auditory memory
- Orthographic processing
- Executive functioning: attention, self-control, organization

Consider using a cross-battery method of assessment to tap into the various areas as no one test is likely to have subtests that can be made accessible in all construct areas. Use two or more narrow abilities to represent the broad ability domains. Use two or more subtests that measure the same or similar narrow ability to represent the narrow ability domain. When a student presents with low performance on one subtest, it is best to administer another subtest that assesses the same or similar narrow ability.

In addition, consider how executive functioning may be impacting learning progress and performance.

In order to diagnose a specific learning disorder, the student must have had appropriate instruction by qualified personnel (e.g., taught with an appropriately leveled curriculum that is accessible, provided instruction for sufficient duration and frequency, etc.).

How to evaluate if vision is the primary cause of the difficulty?

It is important to start with the student's visual condition and its educational implications. Then, it is important to have a thorough understanding of the student's functional use of vision. Review adaptations, accommodations, and instructional practices, and how these were successful or unsuccessful.

Response to intervention must be carefully documented. Remember, blind and low vision children generally learn to read in the same manner as their sighted peers but require much more intensive and direct instruction.

Limited appropriate instruction, changes in learning media over time, and limited integrated use of alternative media across classrooms can complicate differential diagnosis.

To determine that blindness or low vision is not the "primary cause" of academic difficulties, consider the following.

1. Determine whether appropriate interventions and accommodations for vision loss were provided across educational settings.
2. Ensure testing follows best practice guidelines for the evaluation of blind and low vision students.
3. Determine whether attendance and service delivery impacted the fidelity of IEP implementation.

If the IEP was implemented with fidelity (i.e., appropriately providing for the needs stemming from vision loss) and there is limited progress despite adequate academic instruction and intervention, the visual impairment does not fully explain the student's academic difficulties. Given this profile, a diagnosis of a specific learning disorder may be appropriate for a blind or low vision student who is performing substantially below the expected level in academics.

Specific learning disorder and visual impairment reflection points

When academic skills are not developing as expected, consider the following.

- Has the student's visual impairment impacted their vocabulary and concept development, secondarily impacting their reading and writing skills?
- Could early reading delays be related to

reduced early learning opportunities? In the early years, children with significant visual impairments will have less incidental exposure to print in their environment, unless they have had very explicit support and intervention. Sighted children will incidentally learn that printed symbols represent words, whereas children with an early, significant visual impairment will need this explicitly taught.

- Has the student had access to instruction using appropriate materials and adaptations? Were the recommendations from the TVI's functional vision assessment (FVA) and learning media assessment (LMA) implemented consistently and with fidelity?
- For braille readers, are there tactile (sensory) or motor challenges that are interfering with learning?
- Was academic testing conducted using appropriate adaptations for vision?
- Are the problems directly attributable to the student's vision? For example:

    - Missing punctuation or difficulty differentiating math signs because of low acuity.
    - Slow reading rates because of the use of magnification devices, visual field loss, low visual acuity, etc.
    - Problems in maintaining place in reading passages because of nystagmus, visual field loss, etc.
- Has there been a recent change in the reading medium or a history of frequent changes to reading medium? Do educational records indicate consistent challenges in specific academic areas that do not appear to be related to changes in learning medium or significant changes in vision?

Reading

Research shows that blind braille readers activate the visual cortex despite the complete absence of vision, and there may be even stronger occipital lobe involvement in subjects who were blind early (Sadatao et al., 1996;

Burton et al., 2002). Moreover, the core underlying aspects of reading are understood to be universal regardless of the format for input. Dyslexia is commonly understood as a problem with phonological processing, which is the same whether the input is tactile (braille) or visual (print). Phonological processing generally develops at the same rate and in the same order in sighted and visually impaired children (Veispak & Ghesquière, 2010), and braille readers who are struggling with phonological awareness or phonics lag behind in reading as well (Wall Emerson, Holbrook & D'Andrea, 2009).

However, visual impairments have the potential to impact many aspects of reading. Fluency (speed of reading) is one area known to be directly impacted by low vision – braille and large print readers read at a slower rate than fully sighted individuals (reviewed in Atkins, 2012). A careful evaluation will help disentangle, as much as possible, the impact of the visual impairment. Some examples of consideration are listed below.

Braille readers have specific challenges:

- Braille readers with early vision loss will have had much less early, incidental exposure to written language in their environment (e.g., seeing signs, lettering on toys, etc.). This early exposure to print (and thus the orthographic awareness) helps sighted students link the auditory/phonological with the written/orthographic.
- Tactile sensitivity, tactile perception, and tactile memory are essential skills for braille which are not needed for reading print. Early braille readers must be taught pre-reading skills which include tactile discrimination, scanning across a line of dots, and using both hands together.
- Braille involves reading letter by letter, as compared to reading print where a single visual fixation within the printed word can identify an entire word.
- When children are learning contracted braille, they must learn special rules for contractions. Also, contractions can span phonological boundaries, for example the word mONEy can use the ONE contraction. In addition, the same

contraction can mean different things depending on the context.
- Reading braille is slower than reading print. Braille also takes up more physical space, so going back to review a passage can be challenging. This means information must be held in active memory for longer. In general, students who learn to read in braille are able to read faster than students who learn braille later. How much extra time is allowed for braille readers should be individualized to the student's needs, and some recommend avoiding all timed tests (reviewed in Atkins, 2012).
- Overall, given all of the above, you can see that the general cognitive, phonological awareness, and memory load is higher in braille, especially for early learners.

Low vision students reading print also face challenges:

- Small font size can be challenging to read and reduced acuity can lead to misperception of letters (especially between visually similar letters such as O and Q). Reading font that is too small as well as reading enlarged font may take extra time. Scanning back in passages to find information can be challenging. Similar to braille readers, most students will need extra time or untimed tests for reading.

- The type of font may make a difference. In general, sans serif fonts are easier to read than serif fonts.
- Some students, such as students with CVI, may need extra spacing between letters (text kerning) to help reduce clutter and crowding difficulties.
- Learning to use an optical device or technology to access text.
- Readers with a reduced visual field may have a reduced "window" for viewing the word and may require longer and more frequent fixations and narrower saccades (impacting fluency).
- Reading can be a tiring process for partially sighted students.

Reading Connections: Strategies for Teaching

Students with Visual Impairments is a great resource with strategies and guidance for reading instruction and assessment and includes the Kamei-Hannan and Ricci Reading Assessment, which is a comprehensive, informal assessment of basic reading skills at the preschool to eight grade level that is useful for low vision print and braille readers (Kamei-Hannan & Ricci, 2015).

Math

Math presents unique challenges to the blind or low vision student. It is difficult to separate the impact of vision from a primary math difficulty.

Care must be taken to appropriately introduce pre-math concepts in a meaningful way. A sighted student can instantaneously see an overview of a mathematical problem or formula, and quickly scan back and forth. A student reading math in braille will be more likely to have difficulty keeping track and must build an overview of the expression sequentially rather than seeing it holistically, placing a higher burden on working memory (van Leendert et al., 2019). In addition, students with strong verbal skills and auditory memory may be able to demonstrate procedural knowledge but still have challenges with conceptual understanding.

This article from the National Federation of the Blind talks about early math concepts and the Nemeth Code, a system for writing math concepts in braille. Pearson's Accessibility Team for Assessments developed a freely accessible Nemeth Braille Code Curriculum for preschool to 2nd grade, Nemeth Braille Focused Lessons for grades 3 to 8, and Nemeth Symbol Library to support how to write symbols for kindergarten-level math to calculus.

Per Effective Methods for Delivering Mathematics Instruction to Students with Visual Impairments, "the most effective methods for delivering mathematics instruction to students with visual impairments, based on a summary of the literature…include using a combination of the abacus, braille codes, tactile materials, and concrete materials to teach mathematics skills to students with visual impairments (Brawand & Johnso, 2016). Please also see information from the Texas School for the Blind and Visually Impaired which discusses the use of the Abacus. Another tool is the Math Window, which allows students to manipulate magnetic tiles with Nemeth and large print to create and work on problems. Students also may use the braillewriter, large print or braille rulers, or talking calculators for solving math problems. With the use of specialized tools, evaluators need to be mindful of whether the student has proficiency with the tool. Consider whether the assessment activity is measuring the student's mathematical knowledge or skill in the use of tools and adaptive materials, such as interpreting tactile graphics.

Writing

Writing is a complex activity that requires many underlying cognitive and motor skills. Blind and low vision students may write using paper and pen, standard keyboard, brailler, electronic braille device, or slate and stylus. Different fine motor coordination skills need to be developed for efficient use of these writing tools. Similar to fine motor considerations for manual handwriting and keyboarding evaluations, fine motor skills impact the use of mechanical braillewriters (e.g., finger strength, dexterity, and correct finger positioning), which impact the accuracy and efficiency of braillewriting.

There are a number of studies that suggest that students with visual impairments have similar writing abilities and challenges as sighted students. For example –

- On the WIAT-III Essay, low vision or blind students (excluding those with multiple disabilities) wrote essays not significantly different from the standardization sample of the WIAT (Savaiano & Hebert, 2019).
- In a large sample of braille writers, only 13% of errors were braille related (e.g., missing dots, horizontal/vertical transposition). The great majority of errors were phonetic (Erin & Wright, 2011).

An additional factor for students who use braille is spelling. Knowledge of both contracted and uncontracted forms of new words is important. Proficiency in the contracted form is important for reading and writing in braille while knowledge of uncontracted forms of new words is needed for keyboarding and word processing.

How to help students struggling with academics

A TVI's role is to integrate specialized compensatory instruction (including braille) with classroom-based literacy development as well as address areas of the Expanded Core Curriculum. TVIs collaborate with the classroom teacher. While TVI's programs may address reading and math instruction, particularly in relation to compensatory instruction, they are not typically trained in standardized assessments or how to address learning disabilities. If a child is struggling, the student's team may need to include a learning specialist, special education teacher, or resource specialist. Please see the webinar by the Texas School for the Blind on adapting the Wilson Reading System for blind and low vision students.

Blind students typically have age-appropriate phonological awareness skills. If phonological awareness skills are impaired in a student struggling to read braille, this could help support the diagnosis of Specific Learning Disorder in reading. Moreover, directly targeting phonological awareness may be an important area for remediation.

References

Atkins, S. (2012). Assessing the ability of blind and partially sighted people: are psychometric tests fair? Royal National Institute for Blind People Centre for Accessible Information, Birmingham. https://www.rnib.org.uk/documents/577/Psychometric_testing_report.docx

Burton, Snyder, A. Z., Conturo, T. E., Akbudak, E., Ollinger, J. M., & Raichle, M. E. (2002). Adaptive Changes in Early and Late Blind: A fMRI Study of Braille Reading. *Journal of Neurophysiology*, *87*(1), 589–607. https://doi.org/10.1152/jn.00285.2001

Erin, J. N., & Wright, T. S. (2011). Learning to Write in Braille: An Analysis of Writing Samples from Participants in the Alphabetic Braille and Contracted (ABC) Braille Study. Journal of Visual Impairment & Blindness, 105(7), 389–401. https://doi.org/10.1177/0145482X1110500702.

Gillon, G. T., & Young, A. A. (2002). The Phonological-Awareness Skills of Children who are Blind. *Journal of Visual Impairment & Blindness*, *96*(1), 38–49. https://doi.org/10.1177/0145482X0209600105.

Greaney, J., & Reason, R. (1999). Phonological processing in Braille. *Dyslexia (Chichester, England)*, *5*(4), 215–226. https://doi.org/10.1002/(SICI)1099-0909(199912).

Kamei-Hannan, Cheryl, and Leila Ansari Ricci. *Reading Connections: Strategies for Teaching Students with Visual Impairments*, American Foundation for the Blind Press, 2015. *ProQuest Ebook Central*, https://ebookcentral-proquest-com.proxy.lib.sfu.ca/lib/sfu-ebooks/detail.action?docID=4727804.

Layton, C. A., & Lock, R. H. (2001). Determining Learning Disabilities in Students with Low Vision. *Journal of Visual Impairment & Blindness*, *95*(5), 288–299. https://doi.org/10.1177/0145482X0109500504

Sadato, Pascual-Leone, A., Grafmani, J., Ibañez, V., Deiber, M.-P., Dold, G., & Hallett, M. (1996). Activation of the primary visual cortex by Braille reading in blind subjects. *Nature (London)*, *380*(6574), 526–528. https://doi.org/10.1038/380526a0

Savaiano, M. E., & Hebert, M. (2019). A Cross-Sectional Examination of the Writing of Students with Visual Impairments. Journal of Visual Impairment & Blindness, 113(3), 260–273. https://doi.org/10.1177/0145482X19854921.

Tobin, M. J., & Hill, E. W. (2012). The development of reading skills in young partially sighted children. British Journal of Special Education, 39, 80–86.

van Leendert, A., Doorman, M., Drijvers, P., Pel, J., & van der Steen, J. (2019). An Exploratory Study of Reading Mathematical Expressions by Braille Readers. *Journal of Visual Impairment & Blindness*, *113*(1), 68–80. https://doi.org/10.1177/0145482X18822024

Veispak, A., & Ghesquière, P. (2010). Could Specific Braille Reading Difficulties Result from Developmental Dyslexia? *Journal of Visual Impairment & Blindness*, *104*(4), 228–238. https://doi.org/10.1177/0145482X1010400406.

36. Diagnostic Evaluations: Autism Spectrum Disorder

The complexity of assessing autism

Assessing for autism in blind and low vision children is challenging. Autism is diagnosed based on behavioral presentation, including differences in social interaction, social communication, repetitive behaviors, and restricted interests. Autism can be present in blind and low vision children independent of their visual impairment, but autism and visual impairment may both be due to an underlying condition impacting brain involvement. Finally, autistic-like features can also be present secondary to the visual impairment. Sensory deprivation and environmental risk factors may impact social-cognitive development.

Some traits are commonly seen in children with visual impairments as well as children with autism:

- Reduced visual joint attention (i.e., mutual gaze between the child, another person, and an object). Joint attention is a foundation for the development of attachment, language, and learning about the self and others.
- Reduced social interactions. Blind and low vision children respond less often with smiling, pointing, and joint attention. Engaging less in interactions with caregivers can be interpreted as a lack of interest, leading to a decrease in positive social exchanges over time.
- Difficulty with social pragmatic skills. Pragmatic skills include appropriately using eye contact and interpreting nonverbal messages.
- Difficulty with pronoun usage. Challenges

include a late start at using pronouns and more reversal errors.
- Difficulty in learning about theory of mind. Theory of mind is the understanding of the thoughts and emotions of others via observation of the facial expressions and body movements of others.
- Stereotyped movements and behaviors. Blind and low vision children may engage in stereotyped movements and behaviors, particularly visual self-stimulatory behaviors, including eye-poking/pressing/rubbing, light gazing, and flicking fingers in front of eyes. There may also be repetitive motor movements.
- Echolalia, learning and using whole word phrases for specific contexts and activities.
- Socially inappropriate questions.

The examiner must have extensive knowledge of the typical developmental trajectory in blind and low vision children and what is considered consistent with autism rather than typical behavior. Two recent articles provide a review of autistic-like features in blind and low vision students – "Autistic-Like features in Visually

Impaired Children: A Review of Literature and Directions for Future Research" (Molinaro et al., 2020) and "Considerations for the differential diagnosis of ASD in medically complicated pediatric populations" (Ludwig et al., 2022).

Moreover, the tools used to evaluate autism may not be appropriate for blind or low vision children. A recent study reported on the modification and validation of the Autism Observational Assessment Including ADOS-2® for blind and low vision children (Dale et al., 2024).

The examiner must carefully analyze behaviors to differentiate behaviors reflective of interest without opportunity and behaviors that reflect a lack of interest or skill despite opportunity and support. Consider whether the student has had direct instruction to promote the development of social skills. Without the ability to scan a room, identify current or potential friends, or read facial and body language, it is particularly challenging for blind and low vision individuals to initiate social behavior. Both youth with autism and youth with visual impairments may have the desire to interact with others but need support to do so. Blind and low vision students without additional needs may respond quickly to social skill interventions.

Differential diagnosis can be challenging, particularly when students are very young since there may not have been opportunities for intervention yet. Young blind students may present with frequent repetitive, stereotypical behaviors that diminish as they grow older or learn to engage in sensory-seeking behaviors during socially appropriate situations (e.g., at home during free time). The diagnosis of autism may be provisional or deferred as the response to intervention is monitored.

In school, the blind or low vision student may already be eligible for special education services under the “visual impairment” category. In the United States (and many Canadian provinces), if assessment identifies an area of need for services or support, such as for direct instruction on social skills, those services must be provided. A secondary designation of autism is not required. While additional eligibility categories are not always needed in the educational setting, specific diagnoses like autism can provide additional access to services in the community.

References

Dale, N., Sakkalou, E., Eriksson, M. H., & Salt, A. (2024). Modification and validation of an Autism Observational Assessment Including ADOS-2® for use with children with visual impairment. *Journal of Autism and Developmental Disorders*, 10.1007/s10803-024-06514-z. Advance online publication. https://doi.org/10.1007/s10803-024-06514-z

Ludwig, N. N., Jashar, D. T., Sheperd, K., Pineda, J. L., Previ, D., Reesman, J., Holingue, C., & Gerner, G. J. (2022). Considerations for the differential diagnosis of ASD in medically complicated pediatric populations. *Clinical Neuropsychologist*, *36*(5), 1049–1068. https://doi.org/10.1080/13854046.2021.2002933

Molinaro, A., Micheletti, S., Rossi, A., Gitti, F., Galli, J., Merabet, L. B., & Fazzi, E. M. (2020). Autistic-like features in visually impaired children: A review of literature and directions for future research. *Brain Sciences*, *10*(8), 507. http://dx.doi.org/10.3390/brainsci10080507

PART VI

INFORMATION FOR THE TEACHER OF THE VISUALLY IMPAIRED

This section is designed for the TVI or other school staff who are providing consultation and support during a psycho-educational assessment.

37. Psycho-educational Assessments: Information for the TVI

What is a psycho-educational assessment?

A psycho-educational assessment is an evaluation that can help understand a child's learning and behavior. The psychologist conducting the assessment will integrate data from records review; reports from parents, teachers, and service providers; observations of the child; and results of standardized testing and informal, dynamic assessment. The child's functioning is interpreted in the context of their history, culture, and experiences. The goal is to identify the child's strengths and areas of challenge, diagnose conditions such as a specific learning disorder or intellectual developmental disorder (if appropriate), and make recommendations for support and services.

What areas does a psycho-educational assessment evaluate?

Psycho-educational assessments nearly always use standardized tests to measure general cognitive functioning (IQ), academic achievement (reading, writing, math, oral skills), and socio-emotional/behavioral functioning. Informal, dynamic, and ecological assessment measures may supplement or replace the use of standardized tests in some cases, such as when evaluating a student with multiple disabilities. A psycho-educational assessment sometimes measures auditory processing, orthographic processing, memory, attention, executive functioning, and adaptive functioning (everyday living skills). Direct testing results are integrated with other information about the child, including their personal, social, and cultural context.

What is a standardized test?

Standardized tests are instruments that have been analyzed for their validity and reliability. Validity tells you about whether a test actually measures what it purports to measure. For example, construct validity of a test of attention evaluates how well that test actually measures attention by comparing it to another well-regarded attention test or measure. The reliability of a test tells you about the consistency of test scores (e.g., between test sessions, between the first and second half of a test, or between examiners).

Standardized tests have typically been given to a large group of students of the same age so that the child can be compared to their same-aged peers. Ideally, this large "normative" group is representative of the general population. Standardized tests are administered in a specific way. For example, each student hears the same instructions, gets the same amount of help, and sometimes the same amount of time to respond. This same way of administering tests allows the psychologist to compare the student's ability to that larger (normative) group.

The normative group in almost all standardized tests is a sample of the general population. That means that standardized tests almost always compare the student to sighted peers. That is, the test will tell you how well the blind or low vision student is performing compared to the general population.

What do the scores mean?

Standard scores are converted from raw scores (e.g., the total number answered correctly on a test) to show where a student's performance lies compared to a population to help show how a student is functioning compared to typical students their age or grade. Most tests have an average of 100 and a standard deviation of 15. A standard deviation measures how spread out the scores are or how far the score falls from the average score. Different tests have different score descriptors, but the average range or normal limits for standard scores is between 85 and 115.

Scaled scores are another type of converted score. Standardized tests usually are made of subtests or short tests that measure specific skills. Many subtests have an average of 10 and a standard deviation of 3. Different tests use various score classifications, but the average range or normal limits for scaled scores is between 7 and 13 or 8 and 12.

Percentile ranks show how many students scored the same or lower than a student's performance. Percentile ranks are not the same as percentages. For example, a standard score of 100 has a percentile rank of 50, meaning the student performed the same or better than 50 percent of the normative group.

All tests of human behavior have some amount of error. Confidence intervals are a range of scores that likely include a student's true score a certain percentage of time and account for the error inherent in all clinical tests. Confidence intervals are usually used with overall and composite or index scores (i.e., subtest scores combined to represent performance in a particular skill or domain). For instance, a student who scored a standard score of 98 on a certain test may have a 95% confidence interval of 93 to 103, which means the student's true performance has a 95% likelihood of being between 93 and 103. This range of scores most likely describes the student's performance instead of a single score.

Age or grade equivalent scores are the median raw score on a test by children at certain ages or grades, respectively. Age or grade equivalent scores do not mean that the student's performance is consistent with expectations for that age or grade level. For example, a student with an age equivalent of 6.0 on a test answered the same number of questions correctly on the test as most students who were 6 years and 0 months in the normative sample. Standard scores are a more accurate representation than age or grade equivalent scores (Flanagan & Caltabiano, 2004; Pearson, n.d.)

To learn more, review "Test Scores: A Guide to Understanding and Using Test Results" (Flanagan & Caltabiano, 2004).

What is a criterion-referenced test?

Criterion-referenced tests measure mastery of certain skills or knowledge by comparing a student's performance to a predefined standard or criterion. Percentages are the type of scores often used with criterion-referenced tests.

References

Flanagan, D. P., & Caltabiano, L. F. (2004). Test scores: A guide to understanding and using test results. In A. S. Carter, L. A. Paige, M. D.

Roth, I. Romero, & S. A. Carroll(Eds.), *Helping children at home and school: Handouts for families and educators* (2nd ed., pp. S2-81-S2-84). National Association of School Psychologists.

Pearson. (n.d.). *Interpretation problems of age and grade equivalents*. https://www.pearsonassessments.com/campaign/interpretation-problems-of-age-and-grade-equivalents.html#:~:text=An%20age%20or%20grade%20equivalent,examinees%20than%20with%20older%20examinees.

38. Role of the TVI in Psycho-educational Assessments

Pointing the psychologist towards important information

Psychologists will know the bounds of their own competency. They may not realize, however, the complications in assessing a blind or low vision student if they have not done so before. As a starting point, the TVI can point the psychologist to this book, and also to the position paper: Intelligence Testing of Individuals Who Are Blind or Visually Impaired. An updated version of this paper is available for download at the top of the page.

Providing information about the student

Psychologists will depend on you to explain the student's visual condition. The psychologist will want to know about the student's history of vision loss, type of visual impairment, and functional use of vision. It can be very helpful to go over the Functional Vision Assessment and the Learning Media Assessment closely with the psychologist. If you have not yet conducted these assessments, it is really helpful to have them done prior to a psycho-educational assessment. If your student is a braille reader, the psychologist will want information about their braille proficiency.

Information the psychologist needs about the student:

- Visual acuity – binocular, with corrective lenses, for near-based work
- Field loss
- Color vision

- Contrast sensitivity
- Sensitivity to visual clutter
- Visual attention
- Visual fatigue
- Classroom adaptations
- Technology used

Helping set up the room and use of technology

Meet the psychologist in the room where they will be doing their assessment so that you can offer suggestions to maximize the student's vision. You may have suggestions on set up such as placement of seats, and use of lighting. When you see what the psychologist is planning on doing, you may have some suggestions to maximize vision such as using a bookstand to raise the materials higher, using a slant board for writing, or using a special writing utensil. Introduce the psychologist to any technology or special materials the student uses and decide together what will be needed during the assessment. If the student needs support with the use of technology, the psychologist may ask you or the student's educational assistant to be there during the assessment to assist.

Assisting with the interpretation of results

It can be very helpful to meet with the psychologist after the assessment to discuss and interpret the results. You will provide a valuable perspective, taking into account all of the various aspects where vision can impact the assessment, including how differences in vision may have impacted the student's development.

Appendix: Connections and Resources

Connections

To connect with specialists with expertise in assessing blind and low vision students, contact your local school for blind and low vision children. For a list of schools and agencies in the United States and Canada, visit the Council of Schools and Services for the Blind or American Printing House.

Psychologists may consider joining the BVIPsych: School Psychologists Serving Blind and Low Vision Students listserv. BVIPsych is an interactive listserv for psychologists serving blind, low vision, and deafblind students. This forum offers a space to share resources and support one another, strengthen clinical skills and practices to assure quality assessments, interventions and support services.

Educational resources

Comprehensive Evaluations of Individuals With Visual Impairments (2024) is an update to the 2011 Intelligence testing of individuals who are blind or visually impaired. It provides actionable guidelines for clinicians conducting assessments with blind and low vision students.

Making evaluation meaningful: Determining additional eligibilities and appropriate instructional strategies for students with blindness and visual impairment by Marnee Loftin, 2022, Texas School for the Blind and Visually Impaired.

Perkins eLearning resources have extensive opportunities for online learning, including podcasts, videos, and articles.

Texas School for the Blind has extensive resources and online learning opportunities.

Paths to Literacy for students who are blind or visually impaired has many excellent resources for parents, educators, and assessors on reading, writing, and math.

Assessment of children with visual impairments (PAR talks webinar). This webinar discusses the unique challenges of evaluating an individual with a visual impairment. The session reviews issues related to test adaptation, test interpretation, and construct validity. Participants learn how to make an ethical, informed decision about when to proceed with an evaluation, when and where to seek consultation, and when to refer elsewhere.