Visual considerations for AAC supports

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Vision Assessment and AAC: Key take-aways
Disclaimer: I am not a TVI.

- I completed the CVI Certificate graduate program through University of Massachusetts, Boston in Dec. 2021, and have enjoyed many classes on CVI, but I want to firmly sit within my scope of practice as an SLP (find info on this here: https://www.asha.org/policy/sp2016-00343/).
- However, as an SLP who mostly works with students with CVI, I’ve needed to develop an in-depth understanding of CVI-related assessments.
- This is what I’ve gleaned from the resources and wonderful lectures I’ve benefited from!
This is a lifelong process. The world of CVI is constantly developing and progressing!
All of the reports TVIs make are informative for AAC

- Collaboration is key for AAC development.
- Sharing assessment results is one of the first steps in a critical journey of collaboration between professionals, especially between TVIs and SLPs.
- Given workload concerns, it’s not always possible to sit down and discuss the results of each professional’s assessment at length--so share your reports with each other so that you can review each other’s information on your own time frame and schedule.
The following educational vision assessments provide *especially relevant information* for developing AAC systems.
Functional Vision Assessment (FVA)

- This is the first, **foundational** step in understanding how an individual’s vision impacts their functioning in all aspects of life.
- **Method**
  - Lengthy records review
  - Interview with family and entire academic team when possible
  - Observations across environments and settings (at least a full day if possible)
  - Direct assessment of visual field functioning, and more!
- **Common test batteries used for this demographic:** The CVI Range, Dutton’s CVI Inventory, the TEACH CVI Screening, etc.
  - Promising practice implies that an FVA should include more than one test battery in order to build a comprehensive picture of the student’s true visual functioning.
- **Note:** It is critical that the FVA include considerations surrounding **ocular conditions** gleaned from a thorough records review of all ophthalmological and optometric reports
  - For example: many often co-occur with CVI, and cannot be forgotten, including “pale optic nerves” which need specific visual supports, like high contrast (Bosch et al, 2014)
Functional Vision Assessment (FVA) cont…

● Dr. Gordon Dutton and the team at CVI Scotland emphasize the importance of getting a foundational grasp on the student’s abilities in three, key areas in an FVA (CVI Scotland, 2021):
  ○ Visual Acuity
  ○ Visual Field Functioning
  ○ Contrast Sensitivity

● For further information on this area of assessment, check out CVI Scotland’s website on assessing CVI:
  https://cviscotland.org/documents.php?did=3
Learning Media Assessment

● This **legally mandated** assessment (per IDEA) identifies the child’s preferred learning medium by **sensory channel** (tactile, auditory, or visual) and determines whether or not they would benefit from instruction in braille.

● This is technically a learning/literacy assessment, but it looks at literacy broadly, including preferred communication methods.

● This often results in a recommendation of a primary and secondary sensory channel.
  ○ Sometimes there are tertiary (third) sensory channels!

● **The main idea**: what’s the easiest way for this student to access information?
Learning Media Assessment: Key information for AAC

The SLP needs to factor the sensory learning media recommendations into AAC evaluation and design:

- If the Primary sensory channel is **visual**, then consider a visual AAC system (PECS, GoTalkNow, TouchChat, etc.).
- If the Primary sensory channel is **tactile**, consider a tangible/tactile-based communication system (such as tangible symbols or braille-to-speech).
- If the Primary sensory channel is **auditory**, consider an auditory AAC system (such as auditory fishing, Partner-Assisted Auditory Scanning [PAAS] or 2-step auditory scanning).
Learning Media Assessment: Key information for AAC

Consider the combinations of the two preferred learning media:

- For example, if the child is a **visual** learner primarily, but is an **auditory** learner secondarily, consider AAC systems that include *vision first and auditory information second*, such as Partner-Assisted Auditory Visual Scanning (PAAVS).

- If the child is a **tactile** learner primarily, but is an **auditory** learner secondarily, consider AAC systems that include *tactile exploration first and auditory information second*, such as tangible symbols paired with voice output switches or mid-tech devices (like tangible symbols or braille stickers on a GoTalk9+ board).
Learning Media Assessment: a brief note…

- We don’t have to force individuals with CVI to use their vision in order to communicate. The Learning Media Assessment may imply that auditory or tactile input is more reliable
  - And there is anecdotal evidence of students with CVI demonstrating visual improvements after intense braille instruction. (Reisman, 2021)

- We need to listen to adults with CVI who can share about their experiences being challenged to always use their vision first: https://thecviperspective.wordpress.com/home/
  - Please read this when you have the opportunity to do so!!
Learning Media Assessment: a brief note, cont…

In “An Open Letter to all Parents, Professionals, and other loved ones of folks with Cerebral Visual Impairment (CVI),” this blogger--who identifies as “an Adult with CVI”--gives a strong plea to provide choice and agency in learning media for students with CVI.

They describe their own, traumatic experience with being challenged to use their vision as primary, when they felt that auditory or tactile methods were more appropriate for them in the long run.

Their closing statement says it all: “Being sighted is beautiful. Being Blind is beautiful. And all the space in-between is beautiful, too. Please, present your CVI child with options, and then give them the freedom to choose. Your CVI child will grow up to be an amazing CVI adult either way” (“An Adult with CVI”, n.d.)
Learning Media Assessment: words on AAC devices?

- Learning Media Assessments also include the possibility of a thorough examination of font / print accessibility.
- There are many visual skills required for reading, which may be impacted by CVI.
  - For a complete list of ways that visual impairments may impact literacy (including considerations around print), check out “Chapter 2: Impact of Visual Impairments on Reading” in Reading Connections: Strategies for Teaching Students with Visual Impairments, by Cheryl Kamei-Hannan and Leila Ansari Ricci (2015).
Learning Media Assessment: words on AAC devices? (cont...)

- If you are using any words on the AAC devices, keep in mind these key elements:
  - There are **fundamental visual skills** that **must** be developed in order for print/font to be accessible. Consult with the TVI, and pursue further education in Learning Media Assessments.
  - The child must have developed **central vision** in order to discriminate the level of detail required to differentiate between printed words, which look very similar when using peripheral vision.
  - Many AAC devices **vary the font size of words automatically** in order to fit them into the prescribed icon size of the device. This means that **size is no longer a consistent means of discriminating between words** AND means that **you cannot reliably present words in the recommended font size that the child requires**.
    - E.g. “parachute” and “hoop” may appear to be the same length because the device automatically shrunk the font of “parachute” and enlarged the font of “hoop” in order to fit them into the icon.
Learning Media Assessment--extra resources

There’s an excellent series on Learning Media Assessments from Tammy Reisman, Ellen Mazel, and Anne Spitz.

Watch this on your own time for wonderful, robust information about building Learning Media Assessments that are appropriate for students with CVI, especially.

SLPs, TVIs, and parents share a similar desire for accessibility across all settings and emotional/biobehavioral states. We support this by selecting the easiest method of access!
Form Accessibility, cont...

Matt Tietjen’s Image Assessment can be a useful tool in this effort when evaluating accessibility of 2D materials (more on this next week!).

Matt Tietjen’s 2D Image Assessment, cont...

- It demonstrates what images are *most easily recognized and understood by the learner*
- Sometimes, this is included as part of the **Learning Media Assessment**
- There are a variety of ways to administer this:
  - with verbal students, they can state what they see (“What do you see?”)
  - complex communicators may need to perform the testing receptively (e.g., shown an array of 2 photos, “point to the cow!”)
- Careful consideration needs to be given when testing complex communicators, providing a good opportunity for collaboration between the TVI and the SLP
Before this is administered, the TVI needs to be sure that the child can recognize familiar, motivating objects in 2D. If they can’t visually access 2D images, then the assessment is moot (consider this a “basal”).

The 2D image complexity guide is not always a strict hierarchy, because some people access the realistic illustrations more easily than photographs. (Always assess!).
2D Image assessment: Key takeaways for AAC

The recommendations from this assessment will help determine what kind of 2D visuals are most accessible for an AAC system.

For example, if the child reliably recognizes real photos, but struggles with abstract color illustrations, then they will most likely visually access their AAC system more quickly and accurately when you use *real photos*, rather than abstract *color illustrations* (such as Symbolstix or Meyer-Johnson pictures).
2D Image assessment: Quick reference + AAC

Real photos: most easily understood: best to transition from recognizing a real object to recognizing a photo of that object.

AAC apps that can be adapted with real photos: GoTalk Now, TouchChat, Wordpower20, and many more!
2D Image assessment: Quick reference + AAC

**Realistic color illustrations**: these provide color cues to support visual recognition, and the salient features of an item are clearly visible.

**Examples of symbol sets that are realistic color illustrations**: PCS Thin-line, PCS In-context
Abstract color illustrations: these provide color cues to support visual recognition, but require significant reliance on salient feature knowledge to recognize the item.

Examples: Mayer-Johnson pictures (PCS), SymbolStix, LAMP words for life
2D Image assessment: Quick reference + AAC

**Realistic black and white illustrations:** these provide realistic context for the salient features, but do not include any color cues to support recognition.

**Examples:** no known examples currently used in AAC
Abstract black and white line drawings: these rely solely on knowledge and use of salient visual features.

Examples: Pictogram Ideogram Communication Symbols (PIC), Picsyms
Matt Tietjen’s “What’s the Complexity” Framework

- This assessment matches the level of visual difficulty of a task to the complexity of the environment (Tietjen, 2019)
- It’s built on the idea that a learner with CVI will have visual skills that fluctuate depending on the complexity of the environment:
  - a learner with CVI can use their best visual skills in a quiet, non-complex, “pristine” environment, but should not be expected to demonstrate those same visual skills in a noisy, crowded, complex environment.
- A CVI Schedule is often included, and provides a comprehensive overview of the school day in light of the learner’s functional visual profile.
Matt Tietjen’s “What’s the Complexity” Framework

- This includes assessing the level of visual difficulty for each task throughout the day into a “task bank”, and categorizing them with the following labels:
  - Comfortable visual task: considered a “mastered” skill, this requires little-to-no visual effort in order to attend and recognize.
  - Challenging visual task: considered an “emerging” skill, this requires significant visual effort to complete.
  - Frustrational visual task: a visual skill/activity that is outside of the individual’s capacity at that time, causing frustration and fatigue.
“What’s the Complexity” Framework + AAC

This report is critical when considering the child’s ability to access a visual AAC device throughout the day and across environments!
“What’s the Complexity” Framework + AAC

- Aim to design an AAC device that becomes visually “comfortable” to access, so that the child can easily access their device throughout the day and across environments.
  - If accessing the device is in the learner’s visual “frustrational” zone (i.e., it’s visually challenging), then they cannot access their AAC system in noisy/complex spaces.
  - If you decide that a visually complex AAC system is helpful for building language skills, what supplementary AAC systems can you design that do not depend on advanced visual skills, so the learner with CVI can communicate across environments?

  Tension: robust communication and language development vs. visual accessibility.
The “task analysis” table is helpful when thinking about how visually challenging a therapy task is.

- Keep in mind that if you want to teach a child a new communication skill (which challenges the learner), the new skill should be as visually accessible as possible (at the task level “comfortable”) so that the learner’s energy can go towards learning the communication concept.
- This helps us make sure we’re asking our students to only do one hard thing at a time!
This report is also helpful when structuring your therapy sessions and environment. Use the recommendations to match the level of visual complexity of the tasks to the complexity of the environment, and follow the recommendations to include visual breaks!

- It forces us to consider--is the child struggling with their AAC system because of limited expressive language skills, or because the AAC is inaccessible in a complex environment?
- It provides meaningful accommodations that we can employ so that the child can focus on developing communication--rather than spending all their energy filtering out visual and auditory clutter.
Visual Supports

- Keep in mind the assessment results for Integration of Competing Sensory Input and Impact of Spacing and Clutter and Impact of light when setting up your therapy space.
- We want them to do “one hard thing at a time”—so try to make your environment as visually comfortable as possible if you are teaching a new and challenging AAC skill.
  - This means use light intentionally: for example, consider investing in lamps and reducing overhead lighting so that distracting light sources can be placed behind the students so that materials are backlit.
  - Reduce clutter on the walls of your space: consider doing a “two wall challenge” by removing clutter from two walls, so that an individual with CVI can face a non-cluttered corner of the therapy room for visually taxing activities.
  - Where possible, when putting demands on the child, make sure it’s a quiet environment.
  - Think about competing tactile input—-for example, can the student use their vision when they’re playing with a vibrating toy?
Two wall challenge
Framework for visually accessible AAC implementation: “What’s the Complexity”

One, general rule of thumb: Teach new AAC skills in **comfortable environments**.

- Comfortable environments vary with the **individual**.
- This is why the assessment is so helpful, because it helps determine the level of clutter and noise (“complexity”) that the individual student can handle! (Tietjen, 2019)
- **For example**: if there is a student who competently requests preferred materials across environments, but is not yet commenting, then I need to set up a structured routine in a visually comfortable environment in order to teach the student the new skill of making a comment (“this is fun!” or “I like it!” or “I don’t like it!”)
  - This is an easy way to reduce the cognitive load through both routine and environmental adaptations.
Framework for visually accessible AAC implementation: “What’s the Complexity”

- Once an AAC skill is mastered in a comfortable environment, begin introducing increased clutter and competing sensory information to support maintenance of the skill in new settings and new biobehavioral states.
- Be strategic about this.
  - This might look like learning to greet someone by name in a quiet, pristine, therapy room, and once it’s mastered with a variety of conversation partners in that comfortable setting, ask them to greet during morning meeting in the classroom as well, but with one-on-one support.
  - Keep in mind that the individual will most likely need higher levels of cueing (cueing hierarchy!) in a less visually comfortable environment, and that is totally ok!
  - **Do not neglect this step.** The students will most likely not automatically generalize the skills they learn in pristine environments to the busier environments of their lives. Scaffold the support to get them there!
Form Accessibility considerations

- Introducing new AAC materials may look different for individuals with CVI due to form accessibility considerations.
- Individuals with CVI may need extended time to interact with the materials in order to build strong visual and/or tactile memories of the materials before any symbolic meaning is attached to them.
  - Individuals with sensory impairments need time to explore the entire object in order for it to be easily discriminated from others that feel (or look) similar to each other (Bruce, 2005).
  - When exploring by touch, they may benefit from hand under hand support to initially explore it (Bruce, 2005).
For example, visual-tangible symbols may be a good option for an individual with CVI who is a primarily visual learner, secondarily tactile learner.

- Visual-tangible symbols are partial or whole objects mounted on cards of some kind to represent their symbolic nature (the bubble wand mounted on a card represents bubbles, but is not used to make the bubbles themselves) (Rowland & Schweigert, 2000a; Rowland & Schweigert, 2000b).

- Active Learning can be an excellent tool for this: https://activelearningspace.org/
Summary – vision assessments and AAC

- As TVIs, you are all tasked with an incredibly challenging amount of assessment, and *all of the information that you share* is so helpful for SLPs and families as we consider accessible AAC systems for students!
- Remember that visual access is *not* the only method of access for AAC.
- The information in TVI assessments does not only tell us how to *design* accessible AAC systems, but also how we can *implement* them in the most consistently accessible ways for our students!
- There’s a lot of information in this lecture, so use the “TVI Reports for the SLP” chart as a quick reference for the content.
the basics of access methods
Access methods

**Direct Selection:** using body to access device-- finger, hand, eye gaze, head/laser pointing

- Alternatives include joystick, mouse, keyboard

**When accessing a switch, think about most successful activation point--with hand, head, foot, knee, elbow, etc.**

**Indirect Selection:** scanning (visual, auditory [automatic, 2-step], partner assisted, combination of visual and auditory)

https://www.communicationmatters.org.uk/access-methods/

Some voice output options

**BIGmack** -- flat, large target, also comes with step-by-step

**LITTLEmack** -- angled, smaller target, also comes with step-by-step

**Twin Talk** -- slight angle, two options, large target

Collaborate with families, OT’s, TVI’s, teachers regarding what switch setup will be most accessible.
Some options for switches used with adapted toys/activities and scanning.

- **Pillow Switch**-- soft, light touch, wired
- **Big Buddy Button**-- similar to Big Mack, large target, wired
- **Pal Pad**-- thin, light touch, wired
- **Micro Light**-- small, light touch, wired
Some switch set ups for two-step scanning

Bluetooth Switch

Two separate switches

Head Switch
Additional supports

Some people benefit from additional supports like *keyguards*, *stands*, *mounts*, and specific positioning of their device (for direct [physical] access, indirect [scanning] access, and for vision considerations)
What is a keyguard and why use it?

A keyguard helps a person using direct access (mainly with the use of their hand or finger) to more accurately activate their device.

It can also be used to avoid accidental activations.

The keyguard supplies an outline around each cell and can help a person locate each specific icon.
Keyguard

Keyguards typically are made to outline each icon on a screen. They are typically made of thick plastic and attach to the device through a variety of methods (straps, clips, magnets etc.).

Stands

Table stands

Device rests on holder and the stand sits on the table or floor and can be raised, lowered, or tilted

Floor stand
Visual-tangible symbol stands

Slant board

Switch stand
Mounts

Wheelchair mount

Device is held in place by the mount, suspended in the air, and attaches to a person’s wheelchair or sits on the table/floor

Table mount

Floor mount
considerations for visual-tangible symbols
Visual considerations with visual-tangible symbols

● Key factors to consider:
  ○ **Contrast**
  ○ **Relevance** to the students’ lives and experiences
  ○ Dividing the symbols into **sets** that will be presented together, so that each symbol within the sets can be distinct in:
    ■ **Color**
    ■ **Shape**
    ■ **Texture**
  ○ When possible, objects used in the symbols are **one, solid, saturated color**, in order to be less visually complex and to draw visual attention.
Examples of core word visual-tangible symbols

More  All done, finished  break

yes  no  go  stop  help
Examples of feelings symbols

- Scared
- Sick
- Tired
- Silly
- Worried
- Jealous
- Pain
- Happy
- Excited
- Sad
- Frustrated
- Mad
- Grumpy
- Proud
how to teach communication supports
How to teach a new communication system

Make it **motivating**

Pick the most **natural and exciting opportunities** for practice, and the best environment to start practicing them in.

Make it **fun and engaging**

It can be helpful to follow the person’s lead, especially when deciding on activities to start with and what functions of communication best support their needs.

**Use as many communicative functions in the beginning as makes sense for the person.** Some people will do best with choice making and requests, while others will want to initiate conversations, ask questions, share their thoughts and feelings, greet others, and so forth. Decide what makes the most sense for the individual you are working with.
Use aided language stimulation principles

A way of teaching a communication support that involves the person’s communication partner using verbal speech while also modeling on the person’s communication support to build meaning, understanding, and accurate use.

Use of an AAC system is different than talking, so it is important to model on the device as well as through verbal speech. Even if the words are the same-- maybe both are expressing a label for an item-- the way they are produced and accessed are different.

https://www.tandfonline.com/doi/full/10.1080/07434610802131059?casa_token=e7PgyBoEbQMAAAAA%3A-TauuLdSvULw9ntEFkaxukusoSD0GkuEgCVJzpDp5QqK8C6Z9CNRE3zVwSUJIIk7cODtuTt5vQ

https://www.tandfonline.com/doi/full/10.1080/07434618.2017.1338752?casa_token=eW9NdZW2E9oAAAAA%3AjPeWZtyNmBe15Ikr0bWt3stNWoSF4C_SrMLz6zsrKr_hm6Zu_XhDf6SVuCi7welFuqQ5G0aHT7o
Cueing hierarchy-- from most to least support

1. Physical support
2. Immediate model
3. Delayed model
4. Fill in the blank or phonemic cue
5. Verbal cue
6. Non-verbal cue
7. Written cue, braille, pictures, visual-tangible symbols
8. Expectant waiting


Structured practice

- AAC implementation must be **structured** and **intentional** and have careful data collection.

- **Task analysis**: breaking down a complex task into smaller, component parts, and then teach them in a logical, sequential way.
  - This comes out of behavioral research and Applied Behavior Analysis (Cooper et al, 2020)

- Marguerite Tibaudo’s webinar is a wonderful resource for this! (Tibaudo, 2021)
Structured Practice example

- Goal: making a meaningful choice using partner assisted auditory/visual scanning (PAAVS) by reaching out to activate an iPad with a 2D representation of a motivating toy or activity.

Task analysis:
- Look at the iPad
- Listen to the auditory label
- Recognize the material
- Reach out to the iPad
- Touch the iPad to indicate a choice
- Wait for the reinforcement
- Receive the reward (the toy/activity)
Structured Practice Example, cont..

- Possible place to begin
  - Errorless learning with highly motivating material that comes as a quick reward (less than two seconds). (Probst & Blankson, 2017) **The more immediate the reinforcement, the better!** (Scott et al, 2021)
  - This could be a screenshot of a preferred YouTube video song on an iPad. Support the child’s ability to reach out (hand-under-hand cueing if needed) to touch the screen
  - Program the page to play the song as soon as they touch it (this is immediate reinforcement).
  - Track the level of support you provide in your data, and gradually fade the support as they master the task

This can feel overwhelming, granular, and detailed. That is ok—because of the benefits of learning in **routines**.
  - It simplifies things for the student AND the SLP!
Benefits of learning in routine

- Routines are especially important when supporting individuals with sensory impairment. There is a lot of literature and resources available on the benefits of routine-based learning coming from the DeafBlind community (Aitken et al, 2000).

- Specific benefits of routine for this demographic:
  - They provide “a systematic approach that is individualized to meet the child’s skills and preferences” (FACETS, 1999).
  - They provide stability (Aitken et al., 2000).
  - When learning in routines, the individual has the best chance of recognizing an activity, feeling safe and secure, learning, and responding (Aitken et al., 2000).
  - They create opportunities for predictability, consistency, repeated practice, and anticipation (Smith, 2002).
Routines for AAC implementation: **Snack** routines

- **Skills targeted:** device ownership, modeling basic spatial concepts [pre-literacy skill], left to right progression [pre-literacy skill], requesting preferred foods, understanding the concept of “all done!”
Routines for AAC implementation: **Snack** routines

- Tell student “it’s snack time!”
- Ask them to carry their AAC system (e.g., high tech SGD [speech generating device]) to the table.
- Set up SGD on a stable table mount in optimal visual field placement with a page programmed for snack time (“I want” + all food / drink choices, “more” and “all done”)
- Ask student to climb “UP” into their chair, and cue them to buckle themselves in.
- Model spatial concept of “IN”: “I push you IN!”
- Tell the student, “time for snack! What do you want today?”
- Use whatever level of cueing support is necessary to help them choose on SGD.
- After any item is finished, help them drop or push the object into an “all done” bin on their right. Hold it up in their optimal visual field and label it (“spoon is all done”) with aided language stimulation / modeling on their SGD (“spoon + all done”).
Routines for AAC implementation: **Play routines**

- **Skills that could be targeted:** one step routine directions, stop/go, commenting, more/all done, word approximations, etc.
- Tell student, “it’s time to bounce on ball!”
- Verbally cue them to push the yoga ball over to you (“bring the ball here!”) with a gestural support (pointing to the ball)
- Place high tech SGD on stool next to you [within reach of child]
- Sit down in front of the child, and verbally cue them to sit on the ball (“sit on ball!”)
- Start playing “bouncing on the ball” song
- Pause it at predictable intervals. Verbally cue student: “do you want more?”
  - Remember the cueing hierarchy as you support the student’s ability to reach out and activate “more + ball!” on the SGD
- Immediately reinforce the request by pushing “play” on the music and helping them bounce!
  - Trick of the trade: a smartwatch can be handy for quickly starting/stopping music!
Routines for AAC implementation: Greetings routines

- **Skills targeted**: saying hello, participating with a schedule system, repetition of concepts surrounding “all done”
Routines for AAC implementation: **Greetings routines**

- **Welcome student into speech room**
  - “Hello, Kerry, welcome to speech!”

- **Present them with visual/tangible symbol schedule for the therapy session**
  - Point to first symbol: “It’s time to say hello!”
  - Help them visually regard it, then reach out and explore it by touch (allow plenty of time!)

- **Play highly familiar and fun “hello” song**

- **At the end of the song, cue them to say “hello!”**
  - Depending on their biobehavioral state and readiness to participate, this could be helping them push the “hello!” button on the high tech SGD, or supporting their elbow to wave

- **Help them put the “hello!” symbol in the “all done” bin by holding up the all done bin, placing the “hello” symbol at the edge of their tray, and verbally cueing them to push the symbol into the bin (“hello is all done. Push it in!”).**
Comprehension Checks
Comprehension checks

While people are learning these AAC devices, we always want to make sure they are comprehending what they are asking for, talking about, and how to use the device itself.

Every person will be different in what they need and how they demonstrate their comprehension. Here are some ideas.
Comprehension check for no tech AAC supports

**No tech AAC examples:** Sign language, gestures, eye gaze, facial expressions, actions/body movements

Always monitor their use of **total communication** to observe if it matches what they are communicating using these supports. For example:

- Are they using their gaze to communicate thinking about a certain toy, activity, or person?
- Are they smiling in a way that demonstrates they want more or are enjoying an ongoing activity?
- Are they producing the signs within the appropriate context and in a way that matches their use of total communication?
Comprehension Checks for Low, Mid, and High Tech Supports

For people using a device, symbols/pictures, or real objects:

- Show them or do what they expressed and monitor their use of total communication to note if they wanted that item/activity or not-- if they chose a activity, they should demonstrate enjoyment when the activity is presented. If they do not seem happy about it, push it away, or are uninterested, this is a sign they may have picked an item/activity they did not want.

- **Tell them what they are choosing and ask them again**-- e.g., "You are reaching for____, is that the one you want?"-- and they can look, reach for it, label it again, etc. confirming their choice.

- **Switch the presentation of both options in their visual field** (move left to right) and ask them to show you which they want.

- You can prompt them to **confirm “yes” through total communication** -- example, "You are reaching for ____ -- tell me with 'yes' with ____ (insert total communication method here).

- When they make a choice, **show them the associated real items** and tell them-- “show me what you want” or “you picked ____, come get it”.
What about when errors happen?

Errors are going to happen, it is part of the learning process and building a visual library.

If you provide a support and the person makes an error, you can either:

- **Increase the support you provided** -- both through the lens of general modeling and visual access
- **Reference the error and ask for clarification**
  - Acknowledge this-- “You chose _____, but you do not seem to want it.’
- **Offer a choice** e.g., “Let’s try again-- do you want ____ or ____?” , “were you saying ____ or ____?”
  - If they choose the other, offer that and closely monitor signs of total communication to note if this is what they wanted or not
  - If not, maybe they do not want either choice, want a break, need wait time, or are finished with the activity. Make adjustments as needed.
  - If they choose the same item again, engage in what they are talking about and see if it seems to be accurate. They may have not been ready before or changed their mind. Again, make adjustments as needed.
considerations for eye gaze as primary access method
Low Tech Eye Gaze

● Using:
  ○ Whole objects
  ○ Visual-tangible symbols
  ○ Pictures/photographs

● Considerations for:
  ○ Environmental
  ○ Visual supports
  ○ Cognition and language abilities
  ○ Number of choices in field
  ○ Wait time
Examples of low tech eye gaze options

Choices presented as real objects and photographs
Things to think about with CVI

The person needs to be able to **visually attend to targets for a period of time** (gaze to objects/photos to communicate, dwell time on device—which is customizable).

Needs to be able to **sustain this visual attention for a period of time** in order to use the device to communicate during ongoing activities and daily routines. This period of time may vary depending on the day, activity, and environment.

Needs to be able to **visually recognize the pictures presented on the screen**.

Depending on how many pictures are shown on the device, need to **take into account visual clutter**.


CVI considerations continued

Think about what supports the person needs to access the device, and how the device will be presented to both support their vision and language abilities.

Do they understand how to use the device accurately—to express their message, look at the target they want to talk about (within all presented visual fields), they need to shift their gaze once they activate the device so it does not continue to express their message.

How will you know when they make an error and how will these be corrected?
What to do when the student experiences visual fatigue?

Experiencing visual fatigue plays a role in visual access for nearly all people with CVI. Because of this, some things need to be taken into account when creating a device:

- If their AAC system requires visual attention and recognition to be successful and accurate, the person will need an alternative way to express themselves in moments where they are visually fatigued.
- Depending on the person, this may be a lower tech device that includes more tactile elements, elements that are presented in a predictable way (e.g., switches in predictable locations so they can be easily accessed), use of no tech methods, such as signs, gestures, and body movements, and the like.
- Once visually rested, the person should be able to access their more robust communication support.


Light, Janice. (1989) Toward a definition of communicative competence for individuals using augmentative and alternative communication systems, Augmentative and Alternative Communication, 5:2, 137-144, DOI: 10.1080/07434618912331275126


