

## LATENCY

- **Have you ever noticed a delayed response in your child's visual attention?**
- **How long does it take for your child to look at a toy or person?**

When a caregiver is offering an object or food within a routine to a child, it is important to understand how long it will take for their child to respond visually. **Latency**, or visual processing, is the time between when an object or action has been presented to a child and when they visually respond. Think of when the traffic light changes colors and the driver needs to respond depending on what color it has changed to; red to stop the car and green to go. Ideally, a child is shown an object, they turn to look immediately, then attempt to reach for and grab it for exploration. Latency is often quicker for objects seen with the lower nasal portion of the retina (Patel et al., 2010), and for children with CVI, this may be an area that affects their awareness and reach.

*Christoph is a twin born prematurely and has had several medical difficulties such as hydrocephalus, cerebral palsy, and CVI. During a home visit, Christoph's family had bought a bowling play set for him and together the TSVI and the family discussed the best way to support his participation in this activity. **In a supported seat**, they showed him the ball by locating his **best visual field**, told him what it was and what he could do, then placed the ball in his lap and **waited**. After **18 seconds**, Christoph looked down where the ball had been placed and swiped at it knocking it off his lap towards the direction of the pins. He was elated that he could do this. Because the family knows Christoph needed additional time, they gave him the opportunity to participate visually by **waiting for his visual response**.*

### Strategies to Help Decrease Visual Latency

**Wait time:** By allowing adequate time between the presentation of an object and the child's response, the child has an opportunity to process the visual image and then plan and act on that gesture. When a caregiver knows the amount of visual processing time it takes for a child to respond visually to an object, they will allow that child the time they need to **rewire their brain for quicker visual responses, as well as facilitating successful participation. Providing Wait Time for a child is more difficult than it seems.** Some strategies to use include counting to ten under your breath, or setting the stopwatch on your phone, or using a timer.

**Environmental Considerations:** Research shows that that **visual latency increases with decreasing visibility** (Patel et al., 2010) Always **locate the child's best visual field** and present the object there. Provide optimal lighting to make it as easy as possible for the child to use their vision to improve their latency over time.

To make certain that the child is only responding to the visual presentation:

- Do not say anything or verbally prompt the child
- Do not move the object being presented
- Observe your child in different routines for increased visual attention
- Watch for signs of stress and fatigue
- Give 5-10 minutes of looking at strong visual inputs for warm-up time

**Motor Considerations:** It is important to consider the child's motor capabilities. Work with your early intervention team to determine the best positioning for the child.

- Consider side-lying positioning for visual tasks if sitting is not an option
- Observe visual behaviors in different positions
- Provide supportive seating

#### Waking Up:

- Move within close range of your child and **wait** for a visual glance your way
- Turn on the light or open a curtain across the room and **watch for a visual response**
- Don't talk until you see child alert and use a visual response, i.e. gaze your way, eyes widen
- Develop a **consistent morning routine** with your teacher of students with visual impairment

#### Bedtime:

- **Visually cue** the child with a book or blanket and **wait** for a visual response
- Consider placing a **continuous light source** such as a lava lamp, a starry night mobile, or night light near the bed
- When putting pajamas on; show them first to the child and **wait** for a response

#### Playtime/Floor time:

- Use **favorite objects and toys** that attract visual attention
- When offering choices give plenty of **wait time** for visual recognition of each object
- During games or social interactions, **wait** for the child's visual responses for participation
- Notice if the child follows a character on a bright colorful TV, **without sound**.

#### Mealtime:

- Present food (g-tube pouch and/or bowl, spoon) in best visual field and **wait** for a response
- If child is beginning to look at faces, sit in front of child and **wait** for them to look at you
- Patiently watch for any visual attention during meal time and **notice changes**

#### Hanging Out/Reading on Laps:

- If watching T.V., let the child sit in your lap, then **watch** for visual responses
- If reading a book, go slow and give the child plenty of **wait time** to look at each page
- If cooking, set the child up to watch within the kitchen; **show objects being used** to the child and wait for a visual response
- Roll large, colored exercise balls slowly across the child's view, and encourage following them
- Blow bubbles slowly and see if the child can locate them

Patel, S., Schwartz, S. H., & Swanson, W. H. (2010). Differential vertical visual latency as determined with a simultaneity paradigm. *Vision Research*, 50, 534-540. <https://doi.org/10.1016/j.visres.2009.12.1>