

# Closing The Gap

## Solutions

April / May, 2022  
Volume 41 - Number 1





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## PUBLICATION INFORMATION

Closing The Gap (ISSN: 0886-1935)  
is published bi monthly in February,  
April, June, August, October and  
December.

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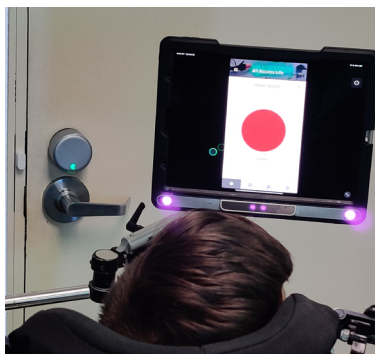
# contents

volume 41 | number 1

April / May, 2022

## 3 Making an Office Accessible with Smart Home Technology

By Bradley Heaven and  
Daniel O'Connor



## 6 Self-Expression in the Art Room, It Takes a Team!

By Deborah Schwind and  
Judith Schoonover



## 16 AAC in Special Education, My Journey and Perspective

By Mike Hipple

## 19 AAC and CVI: Beyond Red and Yellow

By Debbie Perry



## 23 Product Spotlight

# Making an Office Accessible with Smart Home Technology

Smart home technology is changing the way we live our lives. Everyday, I witness my best friend and business partner, Brad, turn on our office lights, unlock and lock our door, turn on the humidifier, turn on the TV, turn on the XBOX, play his favorite music and more. He does all of this by simply looking at his device! That's right, Brad uses nothing but his eyes to do all of this. Let me explain...

Brad uses an eye-tracking device called TD Pilot from Tobii Dynavox: <https://www.tobiidynavox.com/pages/tdpilot>

The built-in eye tracker tracks where Brad's eyes are looking which gives him full control over an iPad! This means he has access to all of the IOS apps and the Tobii Dynavox communication apps when he wants to speak. We discovered that smart home assistants like Alexa are able to understand the device's voice. So, Brad is able to type out commands to Alexa and she then carries them out.

"Alexa play relaxing music"

"Alexa turn on the TV"

"Alexa turn up the volume on the TV by 10"

"Alexa turn on the lights"

These are some of the commands I hear Brad use everyday. The best command I've ever heard Brad use came on my birthday. We walked into our office and he immediately started



Brad using the Tobii Dynavox TD Pilot



**BRADLEY HEAVEN AND DANIEL O'CONNOR** Bradley was born with nonverbal spastic quadriplegic cerebral palsy, but he never lets it hold him back from living life to the fullest. What started out as a job for Daniel at the age of 19, working as Brad's full time aide while he attended high school, has turned into a journey neither of them would have ever expected. Over the years they've built a very unique and everlasting friendship. A decade later, they're still attached at the hips! They're now using their unique journey and experiences with adaptive products and assistive technologies to help others with disabilities through their non-profit, All Access Life.





Brad loves to use Alexa!



Amysen Smart Plug

typing to Alexa on his device. I figured he was typing his usual morning commands, but what came next was a moment I'll never forget! Since Brad is nonverbal he can't sing me happy birthday, so instead he decided to ask Alexa to sing me happy birthday! Alexa broke out in song and we were both smiling ear to ear! This moment has stuck with me and truly showed me how empowering artificial intelligence can be.

In October when we were setting up our office it was important for us to ensure every piece of technology was Alexa compatible. We wanted Brad to have control over everything by simply asking Alexa. However, there were some products we purchased that unfortunately weren't compatible. That didn't stop us from finding a way to make these products "smart" and Alexa compatible! We did our research and found a way to make pretty much any device Alexa compatible using smart plugs.

For example, let's say you have a lamp at home that you purchased 20 years ago, this lamp would definitely not be considered a "smart" lamp and it wouldn't work with Alexa. However, you can make it smart by simply plugging it into a smart plug! After following the quick setup guide through the smart plug app, your 20 year old lamp would then become Alexa compatible! You would then be able to control your lamp using your voice or directly from the app.

Amazon link: <https://amzn.to/3H1Tbqq>

The beauty of being able to control these smart home products using your voice or device is that we're living in an age where people with disabilities can control these smart home products in a variety of ways! For example, someone who is nonverbal can use an Augmentative Alternative Communication device to speak to an artificial intelligence like Alexa and have her trigger certain actions. Alternatively, people with physical disabilities who are navigating their devices using their head, mouth, eyes, feet, joystick, etc... can control these smart devices by accessing the app on their device.

I've seen first-hand Brad use an iPad in 2 very unique ways. 5 years ago, he was using his head to control an iPad using 2 head switches to navigate. He did this using Apple's accessibility feature called "Switch Control" This feature allows you to control an iPad using adaptive switches that can be positioned anywhere! In Brad's case, he has the most control over his head, so head switches were best for him at this time.

Today, Brad uses nothing but his eyes to navigate his iPad using the new TD Pilot device. It's amazing to see the constant progression of assistive technology! Decades ago, this would have all seemed unrealistic. Someone controlling items around their home or office using nothing but their eyes! This is the type of thing you'd see in sci-fi movies or TV shows like The Jetsons. However, we are currently living in a truly exciting time where the possibilities are endless!

Here is an example of the items you would need to control an iPad (with a lightning port) using switches. This setup would





AbleNet Hook+ and Jelly Bean Switches

allow a user to control up to 4 switches to navigate an iPad via the Switch Control accessibility feature. Note that there are a variety of different switches and adapters that make this feature possible. Here is just one example:

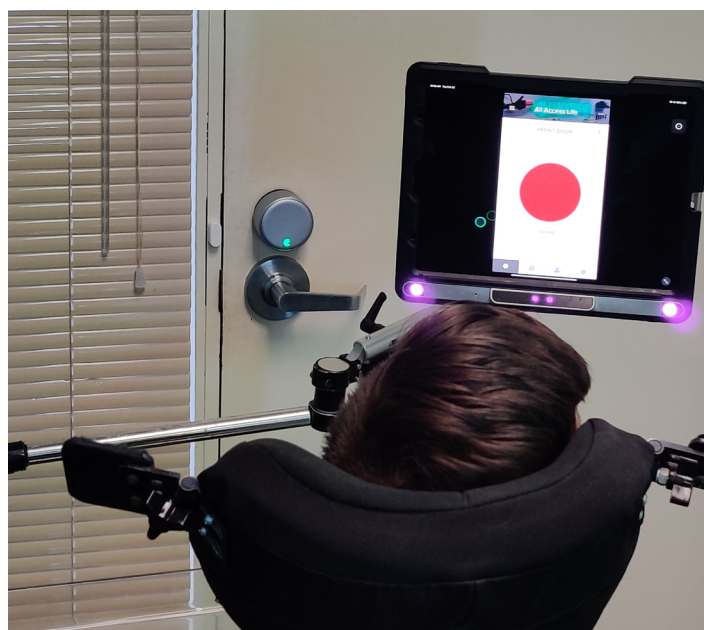
Hook + Adapter: <https://www.bridges-canada.com/products/hook-plus>

Jelly Bean Switches: <https://www.ablenetinc.com/jelly-bean>

Another really cool feature we discovered was setting up “routines” on Alexa. This allows you to say one command that triggers a series of commands for Alexa to carry out at the same time. For example, when Brad and I walk into our office, Brad immediately types “Alexa, good morning” then presses speak so his device says the message out loud. This triggers Alexa to carry out the following commands:

- Turn on the TV
- Turn on the Humidifier
- Turn on 5 different lights
- Turn on our favorite radio station
- Alexa says “Good morning Brad and Dan, welcome back to the office! Have a great day at work today. Keep shooting for the stars!”

Every morning this puts a huge smile on our faces! Brad always says he loves how empowered he feels that he’s able to control everything autonomously. I also see first-hand the look of accomplishment when he’s controlling these smart products. After a long day of working on our business we pack up and Brad types “Alexa, good night” which triggers Alexa to turn everything off and she also gives us a little motivational speech! We then shut the door behind us and Brad locks up and off we go! Since Brad is unable to physically lock the door himself we found a



August Wi-Fi Smart Lock - Brad unlocking the door.

product that will allow him to unlock and lock the door using his device! It’s called August smart lock and it’s one of our favorite smart home products to-date!

Amazon link: <https://amzn.to/3sXus1j>

This is a lock that replaces your existing deadbolt and allows you to unlock and lock the door through an app on your device or by asking Alexa. You can also set it up so your door locks and unlocks automatically when you arrive or leave your place! Every morning when we arrive at the office Brad unlocks the door using his eyes and every evening when it’s time to go home Brad locks up!

We’re constantly looking on the web for new innovative smart home products that will give Brad more independence. Our next purchase is going to be a robot that vacuums and mops the floor. This will give him the ability to be our office cleaner! He’ll be able to launch the robot by the app or by asking Alexa. After Brad eats, there’s usually plenty of food that falls onto the floor. As I was sweeping up the floor one day, he mentioned if he could help he would. I immediately went onto the web and found a 2 in 1 robot that will both vacuum and mop the floor. Brad will be able to control the robot through the app or using Alexa. Stay tuned for some videos!

Overall, smart home technology is allowing people with disabilities to be more independent. The future is bright and we will be here finding all the latest innovations that make life easier for Brad and others with disabilities. We’ll showcase these products on our website and social media channels so you too can stay up-to-date on all these life-changing products.

Here at All Access Life we want you to live your best life! ■



# Self-Expression in the Art Room

## It Takes a Team!

Engagement in art activities is an ultimate form of self-expression leading to a sense of personal fulfillment. When students require specialized adaptations to access art materials and have a successful art experience, related service providers and educators should collaborate to make that happen. Drawing from their experiences working with art educators and students, the authors created a simple, intuitive, Adapted Repurposed Tool (ART) kit from easily found materials to ensure participation in art activities.



**DEBORAH SCHWIND** is a school-based occupational therapist with over 30 years of experience. She completed her doctoral dissertation from Drexel University with her research focused on developing job skills, work behaviors, social skills and self-determination skills through a school-based Community Based Instruction (CBI) program for students with autism in elementary school. She received an Innovator Award from NBCOT related to this program in 2021. She has presented nationally on transition skills, community-based instruction, IADL interventions, accessible curriculum using UDL principles, and adapted art tools. She has been published on these topics and has co-authored a chapter in the Best Practices in School Based OT and is currently working on co-authoring a book with AOTA Press. She graduated from East Carolina University where she completed internships at Duke University and Johns Hopkins University. She received her graduate degree from Old Dominion University in educational administration. She has worked in pediatric rehab, early intervention, home health, and inpatient (including NICU) and outpatient settings. She is an active member of the AOTA Community of Practice-Transition work group.



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Every individual should be afforded the right to express themselves through the visual arts. Art provides a multi-sensory and open-ended opportunity for self-expression; however, productive and meaningful art experiences do not always occur without careful consideration of the strengths and weaknesses of each student. There are a number of reasons a student may experience difficulty participating in visual art activities. Sensory differences or sensitivity may interfere with seeing, hearing, or touching art tools or materials. Tremors, range of motion differences, strength and endurance limitations, difficulty grasping tools or using coordinated patterns may affect engagement and satisfaction. Differences in communication, self-regulation, or cognition may interfere with understanding and following directions, remembering sequences, and sustaining attention affecting a student's ability to create independently. Additionally, the physical barriers of one-size-fits all furniture, sensory overload, and standard as opposed to customized tools in the art room can impact project outcomes.

The Individuals with Disabilities Education Act (2004) ensures that all children with disabilities receive a free appropriate public education with special education and related services designed to meet their unique needs in the least restrictive environment possible. An effort to educate more children within inclusive environments has resulted in an increasing number of students with more complex disabilities attending art classes. However, "attending" art classes does not necessarily guarantee active participation. Art class can become a missed opportunity for the student with special needs. Some art teachers may feel ill equipped to address the special needs of students with physical, cognitive, sensory, communicative, or behavioral differences. They may believe that they do not have the time to adapt lessons, or they may take a literal approach to Core Arts Standards. Paraprofessionals who accompany students to art classes may view their responsibility in the art room as overwhelming when supports and adaptations are not provided, or they may produce a product on behalf of the student, reducing the student's art room experience to that of an audience (Cramer et al, 2015). These challenges and barriers can be overcome or circumvented when educators, related service providers, and support staff proactively collaborate on determining tools and solutions so that all students can successfully participate and create.

The principles of Universal Design for Learning (UDL) stress multiple means of engagement, representation, and action and expression using a proactive approach, so the student is successful regardless of the barriers (CAST, 2018). Malley (2014) lists *Guidelines for Teachers of the Arts* as follows:

1. Maintain high expectations
2. Promote communicative competence
3. Use the principles of Universal Design for Learning
4. Know how to select and use appropriate accommodations for individual students
5. Make use of evidence-based practices



Figure 1: Adapted Repurposed Tool (ART) kit contents

## 6. Target instruction and use formative indicators of student performance

With simple modifications, it is possible to ensure that all students can be engaged, and express themselves through art. In the art room, it is easy to present materials in multiple formats and the very nature of creativity allows for flexible approaches with open-ended outcomes.

Adaptations and a continuum of (very) low tech to high tech assistive technology (AT) supports can be used and customized to improve access to art, often with easily found materials (Coleman, et al., 2015). Mistrett (2001) suggests adaptations to attach or stabilize tools and materials or to make tools easier to hold, or "confiners" to produce boundaries. Positioning and mobility supports can make the difference between encountering barriers and providing access to art experiences.

Occupational therapy (OT) practitioners can play a valuable role in helping teams to determine the right tools and supports. The focus of OT is to allow individuals to be as independent as possible, and to actively participate in activities that are meaningful to them. OTs have a unique educational background in the neurosciences, anatomy, and physiology as well as human development, fine motor, visual perceptual and sensory processing. Their training in mental health addresses social skills, self-confidence, self-esteem, empathy, and peer interactions (AOTA, 2015). Each student's challenges are distinctive. OTs use observation skills to determine the student's strengths and weaknesses by applying critical thinking skills and task analysis, making them ideal collaborators along with art educators to support all students in the art room. OT support can take many different forms including a consultative role with the art teacher



and providing direct services to the child in the art room.

Use of a collaborative approach to addressing student needs in the art room might include the art teacher, a general education teacher, related service personnel and paraprofessionals to ensure that the appropriate supports are located, implemented, and evaluated. By examining the reasons for a student's difficulties and analyzing the art activities, the team can help problem solve and strategize collaboratively with the art teacher to ensure success. Likewise, knowledge of the impact of disabilities can assist art educators in understanding the general characteristics and needs of students they might be serving (Malley, 2014). This article will specifically describe the needs of, and adaptations used to support a student with spastic quadriplegic cerebral palsy, low vision, and cognitive challenges educated in the general education setting and the tool adaptations that resulted in the development of Adapted Repurposed Tool (ART) kits (Figure 1), a collection of easily assembled, inexpensive tools to facilitate student success during art activities. With the assistance of grant money, the ART kits were provided to every art teacher in the school district.

## CREATIVITY TAKES COURAGE.

Henri Matisse

To provide authentic and independent exploration and creativity in art classes, it may be necessary to adapt art tools, modify how the art activity is completed and closely examine the art class environment to determine the best methods to provide access. For the past four years, an occupational therapist has accompanied an eight-year-old third grader with spastic quadriplegic cerebral palsy, seizures, low vision, and memory deficits to art class and collaborated with his art teacher. Each week the OT and the art teacher collaborate about the upcoming projects. They apply the SETT (Student, Environment, Task, and Tool) framework to determine how the projects will be modified and whether it will be necessary to adapt or create a tool for the project. The SETT framework (Zabala & Bowser, 2005) considers the Student's strengths and weaknesses, barriers to participation or engagement, as well as his/her interests. The Environment or the setting where the activity takes place including the physical layout of the room, the atmosphere of the room and the expectations in that environment from adults and peers is discussed. The Task is analyzed. What does the student need to do? Can he perform the task in the same way as his peers? How can the task be modified so he can perform it as independently as possible? Finally, the best Tool for the task is determined. The tool can be a device, service or strategy that will help in accomplishing the task. A device may not be the answer for improved participation, but a strategy may help with improved participation. For example, seating a student who may have difficulty with the sensory experiences of the art room in an area where there is less noise or less distractions and lowering the lights may help

make art a positive experience. For the eight-year-old third grader in this narrative, every art project for the student is modified or adapted to ensure as much independence as possible. The modifications and adaptations are made proactively based upon the guiding principles of UDL. Engagement is ensured via preferential seating and the teacher narrates, models, and provides systematic examples of the assignment, thereby providing multiple means of representation. Step by step demonstration for the whole class is provided and projected onto a large screen so all students can see the demonstration. These steps are uploaded into videos that all students can access to further clarify steps. The student completes the same art project as his peers but creates each assignment differently exemplifying alternative means of action and expression. For instance, a lesson in symmetry required the class to draw a butterfly and color each side exactly the same. The assignment was modified for the student since he could not hold a writing tool and draw in the traditional sense. A piece of paper was folded in half with a butterfly wing outlined on the paper for the student. He painted the butterfly using an adapted PVC tool with the paintbrush in it. The student has range of motion limitations in his forearm and cannot perform forearm movements. This forearm position dictated the type of tool that was fabricated. After he painted half of the butterfly with the uniquely customized tool, the paper was folded in half, so an exact duplication was made on the other side. Through this activity, he was able to learn the concept of symmetry and was successful in painting the butterfly without assistance. The independence gained through assignment modification and tool adaptation resulted in increased self-esteem and confidence in his abilities while teaching the same concept of symmetry. During the process of painting the butterfly, the student had control over what color he wanted to use, where he was going to apply each color, how much paint he put on the brush, when he wanted to change colors, and mixing the colors. These decision-making skills are steps toward self-determination skills and help foster engagement and motivation.

Positioning has been essential to the success of this student in art. He operates a power wheelchair independently; however, the wheelchair does not fit under the art table. Alternative seating in a height adjustable chair that can be lowered to fit under the art table allowed him to sit with his peers. As he matured, he recognized that the adapted chair does not offer powered mobility. He expressed frustration about this lack of independence and having to change chairs. As a result, the team, with the student as the lead, decided to use the power chair with a lap tray and assigned him a position at the end of the art table. Currently, art materials are placed vertically on a tabletop easel on his lap tray to assist with viewing. The student has more functional use of his left arm, so materials are positioned at his midline or to the left. He is seated close to the front of the classroom due to low vision and a sample of each project is kept at his workspace. To compensate for low vision and visual perceptual weaknesses,



Wikki Stix and puff paints are used to outline items and create borders, providing tactile feedback regarding where he should be coloring, drawing, or painting. The placement of his art project inside an aluminum pan also provides visual and tactile feedback about the edges of the paper. Contrasting colors are used to increase figure ground awareness. To teach concepts such as background, foreground and middle ground, different sized paintbrushes are used to paint objects in the background and foreground. Through these art activities, visual tracking skills, left right orientation and educational concepts such as top down for reading skills are also addressed.

Tools have been fabricated in many forms, shapes, and sizes for this student. Paintbrushes have been placed inside large Wiffle balls, thin paintbrushes have been placed inside honey bottles, and crayons have been made with donut tins for easy gripping. PVC tools, which assist with grasp, reach, and angulation, have been created for a variety of tasks including clay carving and metal tin punch. One assignment required the class to do a crayon rubbing to learn about background. Since the student does not have the ability to use his fingers with precise control, a crayon-rubbing tool was devised from a block of wood and wooden knob. Small crayon pieces were attached to the bottom of the block of wood, and he was able to do the crayon rubbing independently. Stencils have been created in specific shapes and colored in to eliminate the drawing components of specific assignments. Teaching strategies such as demonstrating step-by-step directions at his workspace are used. In this way, the class gathers around the student to watch the demonstration and explanation. A sample of the project is positioned to his left and the materials are placed in order of how they will be used to eliminate the memory requirements of the activity. Visuals have been used to help with the sequencing of an assignment like a task sheet and then he can refer to that to remember the next steps.

An assignment that incorporated reading and art was introduced where the students were given a page from a chapter book. The students had to find five words on the page that were related to a theme and circle them. The art teacher instructed them to draw a picture on the same page that represented the circled words. She narrated and modeled this process on a whiteboard using a projector to magnify the steps for better visibility. For this assignment, many of the students drew a haunted house as the book pages were from a mystery book. This student has low vision and could not read the small font from this book and has a lower reading level than this book. Instead, a piece of newspaper was used from the children's page. His art piece was larger than that of his peers, but he was able to find words and read words on the larger page with larger font. He chose to make a fire engine. A cardboard stencil was made, and an adapted paintbrush was fabricated using PVC. He painted within the stencil to create his firetruck. The power of making his own decisions and contributing to the planning and execution of his art projects has made him feel valued.



Figure 2: Wiffle ball with Wikki Stix

It is with this student's input that tasks are modified, and tools are fabricated and customized to the task. There are occasions when he has elected to cut up small pieces of paper to create mosaics as his solution to the assignment. Using adapted scissors to cut is a preferred activity. He has created boats, birds, and the sun using the paper scraps. A glue stick placed inside a PVC "T" joint or dipping his finger in liquid glue allows him to glue the papers. To pick up the small pieces of paper, a Wiffle ball is used with Wikki Stix (waxed strings) coiled on the end, which provides a sticky grabbing substance that the paper will adhere to (Figure 2: Wiffle ball). There have been times when these mosaic creations have been used as writing prompts in language arts, as well as to illustrate stories that he has dictated.

The art room has proven to be an environment that fosters inclusion. This student needs assistance for almost all actions requiring physical responses. Initially, this student's peers saw a child in a wheelchair who had great difficulty performing motor skills, yet in the art room, they observed a child who can create and achieve through adaptations. His peers now interact with him, compliment his artwork, are eager to see how his art project is slightly different from theirs, and what tool he is going to use. Socializing with peers has fostered conversation and improved communication skills. Self-confidence bloomed while he painted flowers in a field because he could see that he was doing something that his peers were doing. In the art room, there are not right and wrong answers yet uniquely performed work through self-expression, whereas in the academic setting, there are clearly right and wrong answers, which can be frustrating. According to this student's mother, "His experience in the inclusive setting has enabled him to be a true peer to able-bodied children. The services and uniquely individualized adaptations made by his occupational therapist have provided an opportunity for him to fit in and do what his peers are doing in the school setting."





Figure 3: Pizza box easel with binder clip securing paper



Figure 4: Improvised spring-loaded scissors using aquarium tubing secured with duct tape

Because of this student's successes in the art room, and the tools developed to support him, a countywide initiative was implemented. Drawing from their experiences working with art educators and students with significant disabilities, the authors collaborated to create a simple, intuitive, Adapted Repurposed Tool (ART) kit designed to assist students to hold, reach, and manipulate art materials (Schwind & Schoonover, 2017). They devised a training and a make and take program including an overview of challenges students might experience in the art room based on disability, and general modifications that might benefit all students. Each attendee received visuals to assist with communication, sequencing of the project steps, and setting behavioral expectations. A PowerPoint slideshow (See resources) of each tool, materials needed, and possible uses was reproduced so that attendees could replicate the workshop with parent groups or other educators at their respective schools. Participants were encouraged to bring easily found materials to the workshop, such as plastic milk jugs, pizza boxes, and child-sized scissors, however all kit essentials were provided. Some of the tools contained in the toolkit included:

- Adjustable pizza box easels stabilized with shelf liner (Figure 3: Pizza box easel with binder clip securing paper) to bring student projects to eye level and compensate for students experiencing difficulty with postural adjustments.
- Spring-loaded scissors constructed from aquarium tubing taped to scissor handles (Figure 4: Improvised spring-loaded scissors from aquarium tubing secured with duct tape).
- PVC and pool noodle handles used as adapted grasping tools in which to secure paintbrushes, Q-tips, glue sticks, and more (Figures 5 and 6: PVC and pool noodle handles).
- Tool grips snipped from plastic milk jug handles (Figure 7: Milk jug handle).
- Weighted pencils constructed from five-eighths-inch hex nuts secured with electrical tape. The addition of unifix cubes on the eraser end of the pencil provided a fidget, and a wiffle ball "handle" made the pencil easier to hold (Figure 8: Weighted pencil with wiffle ball handle and unifix cube fidget).
- 4-ounce water bottle handles constructed by inserting paintbrushes into the lids of small plastic water bottles and secured with Wikki Stix®. Filling the bottle with various noise-making materials such as beads and bells can draw students' attention to their hands and be used to assist students with low vision in discriminating paint color by the distinct noise each of their paint brushes made (Figure 9: "Noisy paintbrush").

Over one hundred staff including art teachers, related service providers, general and special educators and paraprofessionals





Figure 5 & 6: PVC and pool noodle handles



Figure 7: Milk jug handle



Figure 8: Weighted pencil with wiffle ball handle and unifix cube fidget



Figure 9: Noisy paintbrush





Figure 10: Student Maker Club member cutting lengths of PVC and assembling handles

participated in the training program. A grant was written to purchase the materials to create additional Adapted Repurposed Tools (ART) kits and to provide more training. To expand the program further, a middle school technology club adopted the ART kits as a community service project and each art teacher in the county was provided with an ART kit ensuring that every child can create (Figure 10: Student Maker Club member cutting lengths of PVC and assembling handles).

## **WITHOUT OPPORTUNITIES FOR ART, THE TALENT LYING WITHIN A STUDENT WITH DISABILITIES COULD BE LOST FOREVER.**

Nancy Bailey

Art is an activity that can promote self-expression, self-determination, self-confidence, and independence. Art can contribute to improved reading skills, fine motor skills, math skills, visual perceptual skills and writing skills. Art can also contribute

to the development of leisure skills. Art is not a class that should just be part of the curriculum in elementary school but should continue to be a class that students take in secondary school as well. Art and other Career and Technical Education (CTE) classes can foster the development of leisure interests. Art can be just for fun and enjoyment. Having leisure interests is important for all students and adults alike as it provides an outlet for enjoyment. Leisure activities including art can also provide opportunities to develop self-regulation, which is a skill many students with disabilities do not have upon graduation which can impact vocational stability. Doodling is used by some for calming and relaxation. Developing self-regulation strategies can start with art. Sketching emotions may be easier than talking about emotions so in this way, art can be used for emotional expression. Students who enjoy paper folding may use this as a fidget for self-calming. There can also be a link between leisure interests and future career interests. For students who enjoy art, working at an art studio, working at an art camp, working at an art supply store may all become vocational interests. Combining an interest with a job contributes to more stable employment for students with disabilities. The possibilities for art extend beyond the crayon box.

Not all artists can, or choose to, physically interact with tangible art tools or materials. There are many apps and programs that can provide opportunities for artistic expression in the virtual environment (See Tables 1 & 2). For example, Auto Draw is a contemporary drawing tool that employs machine learning or artificial intelligence to transform rough sketches, scribbles, and doodles into innovative, conventional icons. It is free, and no download is required. Brush Ninja is a free animated gif creator. Pixel Art Activities for any Subject with Google Sheets created by Eric Curtis, allows the user to make images out of small grids by filling them with selected colors. The National Gallery of Art app contains eight interactive activities inspired by works in the collection of the National Gallery of Art, plus a sketchbook for freehand drawing and a personal exhibition space where users can save their work.

Art is for everyone, and everyone should be provided with opportunities to engage in art experience and express themselves as a participant rather than an audience. Educating all students is a shared responsibility and it takes a team to do it well. For example, some students require the use of augmentative and alternative communication (AAC) devices. These communication supports should accompany students to art and be used both by the student, and by those supporting the student. Art teachers should work collaboratively with members of the student's IEP team including special educators and related service providers to facilitate this process. Other students may require visuals or a behavior plan to understand the sequence of steps of the activity, or the behavioral expectations within the art room. Visuals and behavioral charts should be used in the art room the way they are throughout the school day and building, convey-



ing consistency in expectations, as well as shared responsibility for student engagement and satisfactory outcomes. If a student requires positioning or specialized adaptations to access the art materials and have a successful art experience due to physical or sensory differences, related service providers and educators should collaborate to assure that the student is able to locate, handle, and manipulate art tools and materials, thereby ensuring the basic right to create.

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## ADDITIONAL RESOURCES:

Interested in creating your own ART kit? Get started with the authors' resources which can be found at [bit.ly](http://bit.ly). ■

| Apps for Creating Art                             |   |
|---|---|
| App   | Description   |
| <a href="#">Doodoo Pad</a>                        | A whiteboard for the tablet for coloring fun.   |
| <a href="#">Drawing Desk</a>                      | Digital coloring pages and various digital tools to choose from.  |
| <a href="#">Easy Draw Everything</a>              | Digital coloring pages and various digital tools to choose from.  |
| <a href="#">Glow Draw</a>                         | A blackboard for coloring on the tablet using glow colors.  |
| <a href="#">Magic Slate Simulator</a>             | An app that simulates a Magnadoodle.  |
| <a href="#">NGAkids Art Zone</a>                  | The NGAkids Art Zone app has eight interactive activities inspired by works in the collection of the National Gallery of Art, plus a sketchbook for freehand drawing and a personal exhibition space where users can save and display art created with the program. |
| <a href="#">Panda Coloring Book with Stickers</a> | Digital coloring pages along with digital stickers to decorate with.  |
| <a href="#">Sketchbook</a>                        | A digital sketchbook with drawing, painting and sketching capabilities virtually.   |

Table 1

| Programs Creating Art            |   |
|----------------------------------|---|
| Program                          | Description   |
| <a href="#">Art for Kids Hub</a> | Step by step videos on how to draw almost anything. (free)  |
| <a href="#">AutoDraw</a>         | A whiteboard that has artificial intelligence built into it. It will guess what you are drawing and then you can choose the drawing you want and upload them to place into document and slide shows. (free) |
| <a href="#">Brush Ninja</a>      | Draw a picture on the computer and then animate it to turn it into a gif. (free)  |
| <a href="#">Pixel Art</a>        | Create images using a grid like graph paper. (free)   |
| <a href="#">Quiver</a>           | Print off Quiver coloring pages and color them with crayons or markers. Then use the app with your camera to turn the pictures into 3-D animated stories. (free)  |
| <a href="#">Toy Theatre</a>      | A collection of educational games primarily for elementary school that include art and music games  |
| <a href="#">Storyboardthat</a>   | Make digital comic strips   |

Table 2



# UPCOMING LIVE WEBINARS

## PROFESSIONAL DEVELOPMENT

CEUs are provided by the AAC Institute and are available for live webinars at no additional fee (does not include sponsored webinars unless noted). A 60-minute webinar = 0.1 CEUs. A 90-minute webinar = 0.2 CEUs



### AAC / AT Coaching Models Explained

By Heidi Rabe

Wednesday, April 6, 2022

3:30 pm – 5:00 pm (Central Daylight Time)

**Heidi Rabe, M.A., CCC-SLP/L** is a Speech-Language Pathologist, Owner, Authentic Expression, LLC with over 20 years of experience working with children and adults with a variety of complex communication challenges and specializes in AAC.

Includes 0.2 IACET CEUs, 1.5 ACVREP and/or Closing The Gap Issued Certificates of Contact Hours.

When you hear the word coach, what do you think of? A fancy bus or where most of us sit on planes? Someone giving directions in the moment, calling plays, instructing repeated practice, or providing resources? There are many different types of coaching and evidenced-based coaching strategies. In order to support our students/clients, professionals need to have a variety of coaching strategies in their toolboxes.

During this presentation, relationship-driven, stakeholder-centered, and client-centered models will be discussed, including pros and cons of each. We will also discuss different coaching techniques within each model to help guide participants to choose an appropriate coaching model for their students/clients and setting(s).



### You Can't Take Your Case Manager With You

By Sayard Bass

Thursday, April 21, 2022

3:30 pm – 5:00 pm (Central Daylight Time)

**Sayard Bass, M.S. CCC-SLP/L-ATP**, Sayard instructs a class in the UIC assistive technology certificate program on AT Tools for Education and is a certified TouchChat trainer. Currently she is helping to build capacity in the Assistive Technology program at Southwest Cook County CASE where she is the AT Coordinator.

Includes 0.2 IACET CEUs, 1.5 ACVREP and/or Closing The Gap Issued Certificates of Contact Hours.

We all work so hard to do our best for students, though one day they will graduate and leave us. What can we do to best prepare them for transition? This webinar is a discussion of some of the differences between school and life after graduation (IDEA vs. ADA), some of the IEP pieces we have a duty to complete (Indicator 13), and many resources which are there to help us bring our students closer to independence. This all leads to the tool of the QIAT-PS which can help you start meaningful discussions about the role Assistive Technology will play when that final graduation comes.

This webinar will review the laws pertaining to transition, evidence of what difficulties students have following graduation, areas of skills which can help student's increase success, and the re-development of the QIAT-PS tool to build capacity and increase student self-determination and assistive technology skills for a greater chance of future success.

**REGISTER NOW!**



# UPCOMING LIVE WEBINARS



## Accessing American Rescue Plan (ARP) Funds for AT Devices, Services, and Training

By Dave Edyburn

Wednesday, May 11, 2022

3:30 pm – 4:30 pm (Central Daylight Time)

**Dave Edyburn**, Ph.D, Senior Research Scientist, Professor Emeritus at the University of Wisconsin-Milwaukee.

Includes 0.1 IACET CEUs, 1.0 ACVREP and/or Closing The Gap Issued Certificates of Contact Hours.

COVID-19 has clearly impacted how schools operate. However, few assistive technology leaders or families are aware that the federal government has made special funding allocations to address the special needs of students with disabilities as we try to move beyond the pandemic.

Join us to learn how to advocate for using special federal COVID-19 relief funding to address unmet assistive technology needs. Among the things you will learn in this session:

- Purpose of the ARP funding
- How to locate information on your state's allocation under ARP's Elementary and Secondary Education School Relief Fund (ESSER) and the plan proposed/ approved by the U.S. Department of Education
- Discover how to locate information about your Local Education Agency (LEAs) "safe return to in-person instruction and continuity of services" plan submitted to your state
- Explore allowable expenditures
- Create an action plan on how AT devices, services, and training might be addressed to support students with disabilities during learning recovery.



## Questions to Ask Your OT to Optimize AAC Device Use in the Classroom and School Environments

By Froma Jacobson

Wednesday, May 18, 2022

3:30 pm – 5:00 pm (Central Daylight Time)

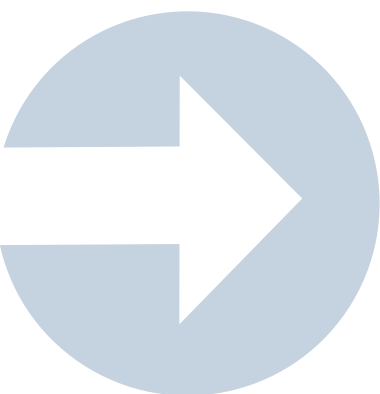
**Froma Jacobson**, B.S., OT, M.Ed. Curriculum and Instruction, Assistant Professor, College of Health Sciences, Occupational Therapy, Midwestern University – Glendale.

Includes 0.2 IACET CEUs, 1.5 ACVREP and/or Closing The Gap Issued Certificates of Contact Hours.

Many students (described in the categories of low and high incidence) who use AAC products could be communicating more effectively across environments if attention were paid 'to the little things'. Typically the OT or PT on the trans-disciplinary team that assesses a student to determine candidacy for an AAC device is looking at access/selection mode but this is only part of the role of the occupational therapy in the assessment/follow along process!

VERIFIABLY the lens of the OT exceeds motor access. This webinar will focus on AAC through the OT lens looking at the various perceptual, motor, environmental adjustments that could be made to the student – device connection that could potentially enhance communication and engagement in the educational setting. Participants will co-author 'the list' classroom teachers can present to the occupational therapy team member to enhance student success in the classroom, bus, lunchroom and playground!

This session is intended for school personnel who interact with students using AAC devices and strategies throughout the school day, from bus pick up to drop off!



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# AAC in Special Education, My Journey and Perspective

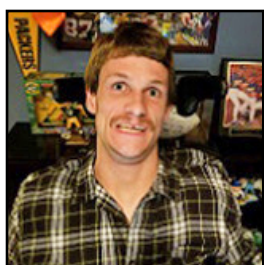
This article is about students who are using AAC and their schooling. The author challenges the typical placement of students who use Augmentative Alternative Communication {AAC}. First he will write about the facts about the education of students who use AAC. He will question these facts and the need for more facts about the students who are using AAC and students that could benefit from using AAC. Next he will tell a story about two boys on their AAC journeys. He hopes the readers will start to understand not everyone's AAC journey is the same, especially in the same school district. Next he will talk about the two boy's journeys and his own AAC journey. He will express the importance of Learning Disability classes and team teaching classes. Lastly he will talk about what if his team didn't understand him and he was in a CD classroom.

There are many false facts about the augmentative alternative communication community that may interfere with students getting what they need. One AAC false fact that has always bugged me as an AAC communicator is that all AAC communicators have a cognitive disability. Mmm, this couldn't be more wrong. Yes, some do but there are a large number like me that do not. Google says 5.7% of students in public schools during the 2018-19 school year had a cognitive disability. Sadly, when doing research for this paper, I couldn't find the percentage of students who use AAC in public schools. I would like you to think about that for one minute.

Why aren't we keeping track of how many students use AAC or could benefit from using AAC in school? And what about the number of students in ID/CD programs. Are there any nonverbal students in these programs who have not been evaluated for AAC or lack a robust AAC program? I know that I can think of some of my friends who never got evaluated for AAC in their education journey or they might have gotten evaluated once. Their teacher and their speech therapist might have said, "They cannot use AAC, because their IQ is too low or have too many

behaviors". I would like you to meet Zach and Bob, our two characters in this paper. Zach and Bob are both 15, same school district, they both use the same device, but their education journeys are 100% different. How can this be? Let's go on the journey and see.

First, we will start with Bob's journey. He started kindergarten in 2007. Bob was in the CD classroom for the first four years of his schooling. Starting in fourth grade he was in a regular education classroom with a one-on-one aide. Bob took off with his communication. He watched his peers talk about their favorite TV shows and he wanted to get in the discussion. So he learned how to communicate and by the end of fourth grade he was up to five to seven words in a sentence. He benefited from being in a regular education class and just hearing his classmates talk. Bob made some great friendships when he was in elementary school. Middle school starts in sixth grade, so Bob needed to change his school. Bob's new school wanted him to be in a self-enclosed classroom, they said it will be easier for him and he needs to work on life skills as he is not secondary school material. Bob's parents believed the school. The next three years



**MIKE HIPPLE**, is a 26 years old man who lives in Wisconsin. He is an AAC Communicator. He loves the field of assistive technology and special education / behavior. He is a member of Wisconsin Autism Society, Council on Exceptional Children, USSAAC, and ISAAC. He founded Wisconsin AAC Network in 2015. When he isn't learning or writing about assistive technology, special education, and behaviors you can find him volunteering somewhere in his local community through Kiwanis.



Bob's communication skills and social skills declined. He missed seeing his friends, he could only see his friends in art and music. At his transition meeting to highschool, the team told the new teacher Bob is a loner and has no close friends. His parents didn't know if he had friends or not. They believed the school team. After the meeting a teenager was waiting outside to talk to the highschool teacher. The teenager said excuse me please don't believe what the teachers told you about Bob, he is so smart and has friends. The teenager said he missed Bob in his class. The teacher thought about what the teenager said to him and he thought about it all summer long. We will get back to Bob, it is time to tell you about Zach.

Zach was in a special education classroom from kindergarten to second grade. In third grade his school got a new special education teacher who believed in inclusion. Zach has had a communication device since kindergarten, but he never wants to use it because he has no one to talk to. Zach was using only one word sentence to communicate like juice and bathroom. Third grade brought some terrific changes for Zach. His new special education teacher wanted to try Zach in regular education class. To start, he was only doing reading and science, then they added math, and then social studies. By December Zach was in the regular class all day long and he was using two to four words in a sentence. He was learning right along with the regular class with typical kids. By the time the school year ended he was doing five to seven words in a sentence, his family and his aide couldn't believe the growth in one school year. Throughout his grade school years, he was always in his grade age classroom and Zach joined school clubs. At Zach's transition meeting to middle school the special education teacher said to the middle school teacher and his parents. Do you have any learning disabilities classes or team teaching classes because I think that will work phenomenally for Zach? The middle school teacher said we don't have team teaching classes but I teach math and language arts in the learning disability program. Do you think Zach can be in a regular geography and science class with an aide or me always in there asked the middle school teacher? We would love to try that, said Zach's parents. So they have a plan and it worked super for three years. Zach loved his geography and history classes. He did okay in science with a lot of one on one help. For math and language arts he was in a pull out class, but when it was possible Zach joined the regular classroom for these classes. Now, this school district has only one highschool. Bob and Zach will be in the same school for the first time. The families know about one another, but the boys never met. Their special education teacher will be the same one that Zach had in fifth grade. After Bob's transition meeting, they had Zach's transition meeting the next week. After hearing everything that Zach did the last three years the teacher needed to think what he's going to do with the two students for the next year. The teacher asked his principal if it would be okay for the two students to be in a mix of regular education, learning disability, and team teaching classes. The

principal said sure. They had their problems in the first quarter, but they worked it out and had an amazing highschool journey together.

Of course this story was made up but it has some truth to it and a lot of important points for us. I used my own life in some parts. The part when Zach was in regular science, geography and history was like me. I was in those classes in middle school. The part when they told Bob's highschool teacher that he had no friends, my middle school team neglected to share the names of kids I was close to. So in high school I did not have any classmates that knew about me and my AAC device. The aides didn't have any idea who my friends were. We need to communicate better who the student's friends are. I feel strongly that a list of friends should be included in the IEP, so the new team will know who the student talks to and eats lunch with. The part where Zach was in pull out math and language arts but he could join the regular classroom, I had that in grade school and middle school. That worked great for me and I hope you think of doing that. In my example you could see how many times Zach and Bob change programs. Sadly this is true for some students who have a communication disability.

Throughout my education I was in all three placements at one time or another regular, mixed, and pulled into a CD classroom for a class or two. First impression of students that are nonverbal is they also have a cognitive disability. This could not be more wrong for so many students. I was in a CD program and an EBD program for my first eight years of my education. I used my behaviors to communicate. The AAC device I had since first grade until fifth grade was not a good match for me. Many students who use AAC might have a learning disability. Learning Disability is a condition giving rise to learning information or skill as related to a person their same age. That is what the dictionary says about learning disability, now here is what I am saying about learning disability and how it impacted me. The learning disability classes are way smaller than the regular classes, 30 students in a regular education class to between 5 to 15 students in LD class, that is half of the students. Making it ideal for the students who use AAC. It impacted me because I could take my time to answer, I felt good speaking in class, I could help my friends if they needed it, and we were all equal members of the class. It feels like a family. Some people will say LD isn't inclusion and I will challenge them and here is why. We changed classrooms and teachers hourly, we had a good mix of students, and we were learning and reading the same books as everyone else in our grade. In highschool, I was in a regular history class and half-way through the year I wanted to change to the LD history class not because the work was too hard for me. Because I heard from all of my friends how fun the teacher was.

I want to finish this paper by telling you something. We can't see into a student's future to know what they will be like at 8, 14, 22, or 60. Our job as educators or their parents is to get them ready for their life. We don't know what they need to know. Yes,



life skills are important to have, but AAC Communicators need to know some history, some science, a higher math level, and read some classic books. I will leave you with this. My IEP team could have easily checked the box to say Mike has a cognitive disability and is a behavioral problem and that is it. Their job would have been done, but it didn't happen that way. They and I worked our hardest to get me where I am today. You wouldn't be reading this if my first team checked that box to say yes Mike has a cognitive disability too.

I run into a lot of families when I am speaking or volunteering and the first question I ask is, are they in regular education classes? If the parent said yes then I celebrate with them because I know that student will have a better life. I just met a family from Virginia, their son is 12 and he is in middle school, he is using an Accent which is a communication device. He published a blog on Lessons From The Big Toe, a new website by Chris Klein. That blog article looked like a highschool student in a language arts did for their final paper, not someone who uses AAC and is 12. His school district, his family, and of course him has done an excellent job helping him become an amazing writer. So the next time you are doing an IEP take a few minutes to think about what impact you want to have on that student and their family, it could change their life.

Remember my friends that went through school and their teams did check the box to say they have a cognitive disability, sometimes I wonder what their life would be like now if they got AAC and their team didn't check the box. ■

# AAC and CVI: Beyond Red and Yellow

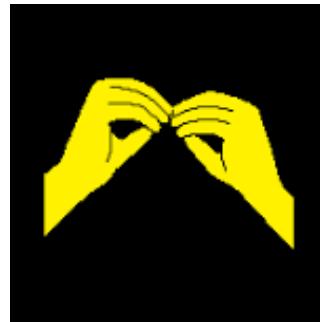
In this article you will read about the basics of what may cause CVI and how to begin to design a robust AAC language system for an individual with CVI. The article will discuss how color can both help and hurt this design, the way people with CVI process visual information, and a brief overview of how to make symbols meaningful to these individuals.

Cortical Visual Impairment (CVI) is vision loss due to damage or malformation in the brain that interferes with the child's ability to understand vision information coming from the eyes. It is the number one cause of vision impairment for young children in developed countries. It has been found that 10.5% of children with developmental disabilities have CVI [1]. This means if you are a pediatric SLP you will very likely find yourself working with children with CVI at some point in your career. Some of the top causes of CVI are hypoxic ischemic encephalopathy, periventricular leukomalacia, intraventricular hemorrhage, infection, trauma, and various genetic disorders which are also conditions common in children with multiple disabilities [2]. If any of the children you work with to provide alternative means of communication have these conditions in their medical history, you are likely working with a child who also has CVI.

## USE OF COLOR IN AAC FOR USERS WITH CVI

In previous trainings, what SLPs have learned about working with children with CVI is that we need to present visual information in a specific way. You have likely learned that things should

be visually simple, you should dim lights, and/or you should add movement to what the child sees. You may also have heard that these children are attracted to the colors red and yellow.



These are examples of high contrast symbols for “more” and “all done”. Making the hands red or yellow do not help the person with CVI interpret what they are seeing.



**DEBBIE PERRY, MSR, CCC-SLP, ATP.** Debbie Perry has worked as an SLP for over 15 years and has been specializing in working with children using AAC for 10 years. She has extensive experience working with children with complex communication needs and multiple disabilities. Approximately 7 years ago she began working with and learning more about CVI as she realized she could not fully help the children she worked with without that knowledge. She began working closely with a teacher of the visually impaired and began reading and learning all she could about CVI so as to better support these children. Debbie currently owns and operates private practice providing in speech and language therapy, focusing on AAC, in the northern Virginia area.



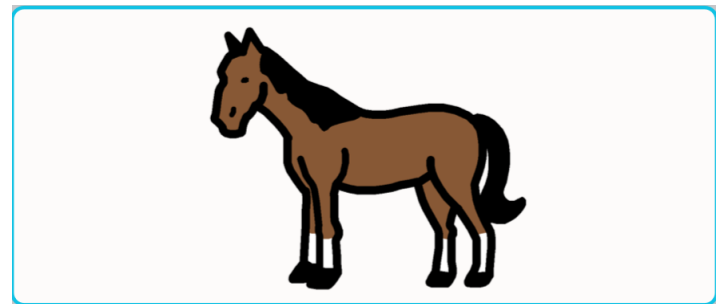
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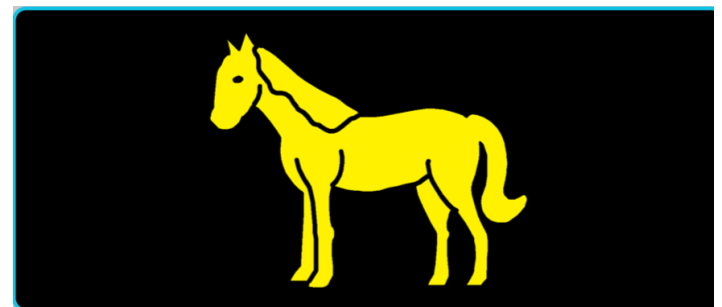
This is all true, however this is only part of the complex picture of designing AAC for a child with CVI. One of the most common misconceptions is that these children require symbols that are high contrast. This typically means bright colored symbols on a black background. The critical piece of information that we need to remember about children with CVI is that the disability is about understanding what is seen. While bright colors may attract the student's attention and specific colors may facilitate visual attention, none of that will help the child understand what they are viewing [4]. In addition to visual attention to symbols, we need the child to interpret or process what they are seeing. We can use preferred color to increase visual attention, but we also need to be sure the child is able to interpret what they are seeing. This is a very important distinction between children with low vision (who are not able to see a small symbol) and children with CVI (who have typical acuity or clarity) but are not able to process or understand what they see. Children with CVI often look at what is in front of them, but their brains struggle to make sense of it. High contrast symbols can actually increase visual complexity because they have multiple colors and many of them are the same color.

These examples may attract a person with CVI's visual attention, but they also may decrease it due to the complexity of the array in each.

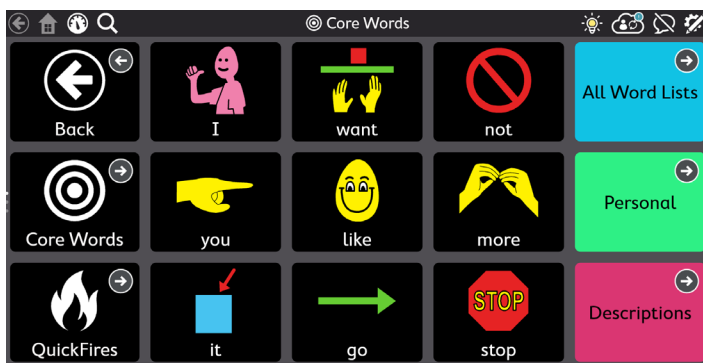
The colors of these symbols are not the true colors of what the object is in real life. For example, a picture symbol of a horse that has the shape of a horse and is brown is close to the actual object it represents. A picture of a horse that is a yellow silhouette on a black background is very discrepant from the item it represents. This actually increases the confusion and complexity for visual processing and makes it more difficult for a student with CVI.



Unmodified Boardmaker horse symbol



High contrast Boardmaker symbol for horse



Example of 3x3 grid on TD Snap with high contrast symbols



Example of Unity 15 with high contrast symbols

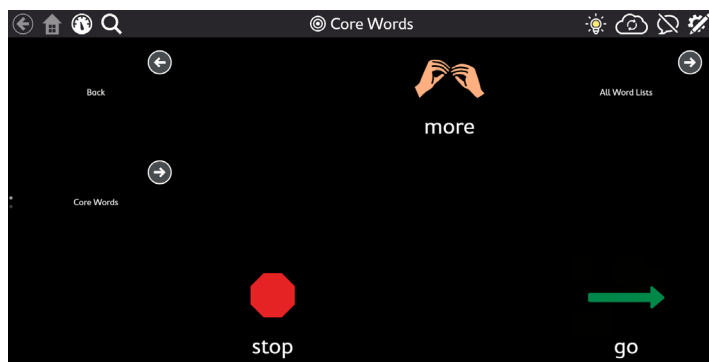
So how can we, as SLPs use bright and preferred colors in AAC? We can use saturated colors and preferred colors to help attract a child to find their communication device in a cluttered space, such as placing red tape on the handle of the device. We also need to remember that those preferred colors may actually distract the child from finding their target. For instance, many times we have found a child to do really well with their SGD until we add in the stop sign or the apple for "eat" and all of a sudden that is the only cell they are attracted to. Another thing to remember with the use of color is if we use a preferred color on the background of a cell to help the child attend to that cell then what happens is the child with CVI is looking at the color background and not the symbol. Then, if they see that symbol somewhere else without the color, they may be unable to interpret it. The moral of the story is that use of high contrast for children with CVI will increase their attention to something, but it will not

help them interpret what they are seeing. It is very important that we use color strategically when working with children with CVI and focus more on decreasing complexity.

## USE OF SYMBOLS TO AAC USERS WITH CVI

So how can we simplify symbols? The one thing we have found for sure when working with children with CVI and complex communication needs is that there is not one fix for every child. You may need to try different things. Here are some suggestions:

1. Try using symbols with 1-2 colors
2. Make all symbol cells the same neutral color (black, white, etc.) – often people think backgrounds must be black. The goal needs to be to reduce visual complexity so keep the background neutral.
3. Consider using the written word – for core words, feeling words, and other words that are not easily visually represented, often the written word may be even less complex than an abstract symbol. Use of Roman Bubble Lettering can be helpful to teach the salient features and shapes of letters, however overuse of the bubbling can increase visual complexity. Make sure to use a systematic approach to using the bubbling as explained by Dr. Christine Roman Lantzy.[4]
4. Consider making the color of the cells the same color as the background so you don't add more complexity with the grid.

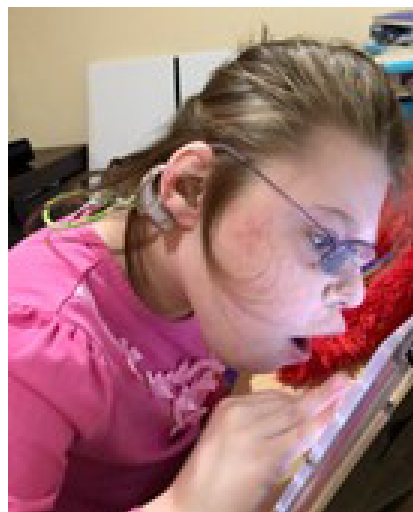


Example of simplified display for child in Phase 2 of CVI.

## WHAT ABOUT MOTOR PLANNING??

We have been asked time and time again, “can’t we just teach these children to rely on motor planning?” The answer is motor planning is a huge component for all children using AAC and should definitely be taught to children with CVI, however because these children still often look and can be taught to visually process what they are seeing, we should not expect them to only rely on motor planning. For instance, when you first began learning to use a keyboard you looked at the keys to figure out where letters were and gradually began fading that to type without looking. A person who is blind or has low vision may

rely solely on motor planning. A child with CVI has the capability to see and often will look and need to understand what they are seeing. As they become familiar with a device, they will use motor planning as an important tool. However, when they hit the wrong button, they use their vision to double check the symbol.



Looking very closely at her SGD after not selecting what she meant to.

Often a robust language system will be visually complex. We want them to use motor planning so that they do not use all their visual energy on using the device. Too much visual fatigue can lead to adverse behaviors or avoidance. So, in general, we do want children with CVI to use motor planning, but what is different from other types of visual impairment is that we want them to also visually recognize and understand the symbols.

## OBJECTS AND PHOTOS AND SYMBOLS, OH MY!

Because of the unique visual characteristics of children with CVI and the need for children to interpret what they are seeing, controversy over the representational hierarchy comes into play. When I first began my journey in working with children with CVI who also require AAC, I was appalled when my TVI colleague, Dr. Sandra Newcomb, insisted that there is a representational hierarchy we need to follow with children with CVI – objects, photos, symbols. This goes against everything we, as AAC specialists, are taught! As I learned more about CVI, I realized our reasoning must be different for these children. The typical approach is based on the fact that there is no research that shows that a child can cognitively understand a photograph any better than a symbol and the use of the representational hierarchy has actually been a myth that has kept people from using aided communication [3]. The difference with children with CVI is that we are asking the child to visually process what they are seeing across many domains. A large part of their overall educational program is to learn to make sense of the visual world. We want



them to know that a photo of a dog is the same as a stuffed animal dog, real dog, red dog, brown dog, etc. For children with CVI they are not able to abstract the salient features of common concepts and generalize this visual information [4]. When they look at a random display of symbols, if they are not taught the 2-D representations, they are not making sense of any of it. Their responses are therefore inconsistent and at some point someone decides their failure with the device is due to cognitive delays when in fact they did not have visual access to the information in front of them.

## STILL NEED ROBUST LANGUAGE SYSTEMS!

So, are we saying that these children should have a more simplistic language system? Should we hold up their language until they progress through the phases of CVI? Absolutely not! Children with CVI need a robust language system just like everyone else and we cannot hold them back until they can process visual information better. They need core words to communicate, ability to communicate a variety of communicative functions, and access to a full language system just like any other person. So, you may think, “if people with CVI cannot visually process symbols how will we teach them core words and give them access to a robust language system?”. Well, you’re right, core words cannot be photographed or represented with objects and therefore, cannot be taught in a visual hierarchy. Objects and photographs can only represent nouns so how do we make sure children with CVI can have access to a robust language system including verbs, adjectives, etc and have the opportunity to express themselves just like we anyone else? We teach these symbols with a combination of motor planning, strategic design, and highly motivating activities. Remember, simply adding high contrast to these symbols will not help these children understand core words but teaching symbols in the context of meaningful activities will help. If we use strategic placement and careful consideration of color and symbol details and if we use systematic teaching and opportunities for practice, children with CVI will learn these important symbols.

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# product spotlight

## HumanWare – Reveal 16i – Smart Desktop Magnifier with XY table



### REVEAL 16i – SMART DESKTOP MAGNIFIER WITH XY TABLE – REVEAL YOUR VISION AND RE-ENGAGE WITH THE CONNECTED WORLD

Reveal 16i is a unique, smart, all-in-one digital magnifier delivering superb image quality along with access to thousands of Google applications, online reading libraries and other resources to help you stay productive and connected. With up to 10x live optical zoom and up to 45x digital magnification, you can enjoy best-in-class image quality showcased on a large 16-inch touchscreen.



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## SEE WHAT YOU'VE BEEN MISSING



### EYEDAPTIC EYE4

Meet the EYE4 available now with EyeSwitch™! Take advantage of both the camera in the phone and glasses for 2-in-1 functionality of a wearable visual aid and handheld magnifier.

Weighing in at 3 oz., The EYE4 glasses are light-weight and discreet for complete comfort and cosmetic appearance. Key features included are all-in-one user interface, image processing and battery charging in a cell phone tethered to the glasses for low vision use.



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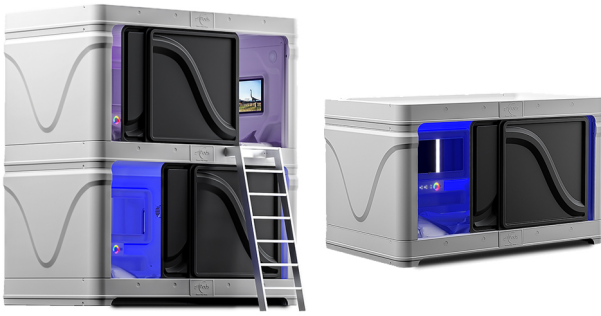


BACK TO  
CONTENTS

April / May, 2022 | [www.closingthegap.com/membership](http://www.closingthegap.com/membership)

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## zPods™ – Dream, Play, Sleep



Natalie went from sleeping in her closet to sleeping 10 hours a night in her new bed. And, her mom no longer has to check on her. Before getting her zPods Bed, Natalie was sleeping in her closet and constantly waking up scared.

Natalie had been diagnosed with autism and schizophrenia. When Natalie would feel scared she would start ringing her private doorbell for her mom, Leah. She would then come and comfort Natalie throughout the night.

Leah felt very open to the idea of seeing if there was anything that could help Natalie find better sleep and a more comfortable safe space.

zPods™ is the first U.S.-based company to provide kids with a customizable sensory friendly, sleeping pod. These sleeping pods come jam-packed with features such as intelligent lighting control, white noise generation, an innovative air filter, and more. With these tools, they believe that children can find better sleep, which means parents can sleep better as well.

## ActiveFloor – An Interactive Floor for Any Child (and Adult) Who Likes to Play



### INTERACTIVE LEARNING, MOVEMENT AND FUN!

ActiveFloor is an interactive floor where children navigate in and play various activity and learning games by using their feet.

ActiveFloor provides schools, nursery schools, after-school care facilities, libraries and hospitals with new ways of furthering educational, social and motor development in a fun way. Provide the children with the opportunity to learn in the way that is the most natural for them: by using the whole body.

With an interactive floor you give kids in all ages the possibility to learn and develop – both intellectually, physically and socially – in the way that is the most natural for them: by using the whole body.

Right now, you can find ActiveFloor at schools, nursery schools, libraries, hospitals and in various playing areas all around the world.



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## Introducing the NEW eyespeak inspo™ by Talk To Me Technologies



### THEY'RE TAKING EYE TRACKING TO THE NEXT LEVEL

#### PORTABLE EYE-TRACKING COMMUNICATION SYSTEM EYESPEAK INSPO™

Their sleek new camera is improving eye tracking with:

Added confidence and flexibility in positioning

The light on the front of the inspo illuminates to let you know you're in the right position for eye tracking (can be turned off). In addition, the inspo can track eyes at a distance of 14 to 31 inches, allowing for more positioning options.

Efficient on-board processor

The inspo's independent processor increases responsiveness, maximizes battery life, and allows for convenient camera software updates.

Faster communication and less room for error

A higher sampling rate means faster eye tracking and speedier communication, even when compensating for head movements.

Easy calibration

As with all of the cameras in our eyespeak lineup, the inspo offers quick and easy calibration of one or both eyes.

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## A Pen That Reads to You Any Book or Printed Document



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Empower your ability to read, understand and learn anywhere by using Scanmarker Reader. With a Chrome-based application build up your word recognition by viewing the highlighted words as it is reading. Improve decoding and phonological processing by reading selected words and develop automaticity and fluency skills.

- Scanmarker Reader is the ultimate pen reader, portable, lightweight and convenient – connect easily to all your devices via Bluetooth.
- Edit, read aloud in real-time through our web application and translate on computers, smartphones, and tablets in more than 70 languages.
- Identify students at risk of reading failure and give them true independence.
- Gain and improve decoding and reading comprehension skills together with fluency in more than 70 languages.



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BACK TO  
CONTENTS



## Break Barriers in Speech and Language



The ClearMask™ brand is the first fully transparent, FDA-cleared and CE-marked transparent mask with full-face visibility. Created in 2017, our clear, medical-grade mask has a smart, patent-pending design optimized for comfort and breathability, while providing assured protection. The ClearMask™ brand blocks aerosols, fluids, and sprays from our faces through its anti-fog, transparent plastic barrier.

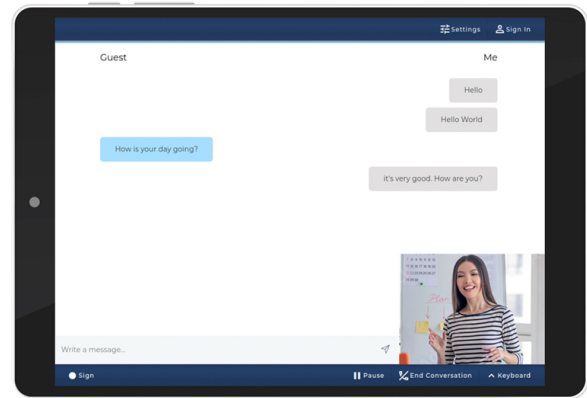
- Proprietary anti-fog technology and latex-free
- FDA-cleared (class II) and CE-marked (class I)
- Meets applicable ASTM level 3 and EN 14683 standards
- EZ-Adjuster strap style without touching the ears
- Available in two sizes for adults and children

Unlike other masks, the ClearMask™ brand allows us to see each other's entire face and facial expressions, making communication more human, natural, and accessible. Transparent, see-through masks are important for so many people.



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## Real-Time Sign Language Translation



### REAL-TIME SIGN LANGUAGE TRANSLATION

Their platform empowers face-to-face conversations between people who communicate through American Sign Language (ASL) and those who speak English by harnessing the power of AI-driven machine translation technology.

As a Deaf-led company, their mission is to make fast, accurate, and secure ASL translation available to everyone, everywhere. From schools and coffeshops to banks and hospitals, we believe everyone should have the ability to communicate in their preferred language.

- Healthcare
- Education
- Business
- Personal



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