Assistive Technology Resources for Children and Adults with Disabilities

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It Takes a Village

Does success with assistive technology (AT) happen in isolation? No! An old adage tells us "it takes a village to raise a child" speaks of everyone in the community having an essential role in raising a child. The same principle holds true regarding the successful use and integration of AT/AAC for every user - no matter their age! It takes a village to nurture independent users of AT who can advocate for themselves and have the support of family in a community environment that champions their use of AT as functioning autonomous members of the community.

Do you sometimes feel like the "lone ranger" in AT or AAC practice in your district or clinical team? Do you wish you had more buy-in from AT/AAC users, their families, the IEP and or clinical team? In this article we will discuss how we can apply this principle of "It takes a Village" to strategic planning for build-

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ing capacity in AT/AAC use. There are four key factors in preventing AT abandonment and encouraging AT success:

- the user
- the family
- the team: school team, clinical team, and/or personal care team
- the community

Every member in each of those areas must remember to"PIN." PIN is our acronym for perception, involvement, and needs.

In this article we will refer to "AT" as a general term that encompasses all assistive technology tools for communication (AAC), mobility devices, low vision, hearing, academic areas (reading, math, written expression), and recreation. By doing this, you will be able to think about your own clients/students/family members and reflect on the information personally.

AT USER

AT User Perception:

AT evaluators are the people with the responsibility of connecting potential AT users with AT. How the AT evaluator perceives the AT user affects the outcome of the evaluation, and it can also affect how the user feels about their own potential to use AT. AT can be overlooked because of the evaluator's perspective and/or preference. Certain bias, stigmas, and general myths about AT can cause the AT user to be overlooked for certain technologies and "not ready" for next steps due to invented prerequisites for AT use.

AT User Involvement:

The AT user's perspective and desires for technology outcomes are often not represented or acknowledged in AT evaluations. When an AT user is not considered as part of the team when decision making, it can lead to device abandonment. Every user of AT has the right to self-determination and to be part of the decision-making process.

AT User's Needs:

From the moment an AT evaluator works with a student, patient, or client, the AT user's goals or wants should be considered. This is the reason there is an "S" for student, in the SETT Framework (Zabala) and an "H" for human, in the human, activity, assistive technology (HAAT) model. Person first and person centered AT evaluations are key to determining the user's needs. Considering the question, "who will be the end user of the technology?" can go a long way towards involving the AT user in the process and lead to mapping out their own plan of use. Involving the AT user in instruction, training, and customization after the AT equipment arrives often has missed golden opportunities for us to have the AT user involved in investing in their own AT use. For a person to become a successful and confident user of AT, the three elements that are imperative to have are the "buy in" of understanding WHY they want to use AT, WHAT they want to learn or accomplish and seeing WHO else is using it and how they can be connected.

Building Capacity with The AT User:

- Involve the AT user in each step of the AT process from obtaining AT to programming and maintenance
- Arrange for the AT user to be exposed to a variety of choices in AT, this includes software and hardware options
- Always consider the user's needs and wants.
- During trials of equipment, help the user to compare and contrast by making a personalized comparison chart with their goals listed in the chart.
- Provide AT education and awareness
- Teach the AT user to advocate for themselves; examples include the Communication Bill of Rights and having consistent access to their AT at all times across all environments.
- Empower the AT user by creating AT passports that explain the AT user's technology to new people they may interact with.
- Expose the AT user to others AT users through camps, support groups, and social media. Some examples of AT users in the media are:
  - Roll with Cole and Charisma
  - Lotsacomptons
  - Lost Voice Guy

Building Capacity with The AT User when communication is challenging:

It's difficult to think about capacity building when there isn't a form of communication that readily allows the person to express their thoughts and feelings about their AT. So, how can there be input from the AT user if they are currently unable to communicate? Ask yourself how does my client/student/family member react to the AT tool? Gestures, facial expressions, and joint attention can be used to determine the user's input and level of Interest. One family shared a story of how a British voice was chosen for their child's communication device. The mother recalled playing each voice for her son and watching for his reaction. He was the most excited for the British voice and therefore she downloaded it. Without words he was able to have input in choosing his voice for his AAC device.

Family Perception: Usually a client/student's caregiver/parent/guardian/spouse knows very little about AT. A significant piece of creating a successful AT user is not only educating about the device but educating the family as well. "Family" can be parents, grandparents, siblings, spouses, other guardians, or caregivers. The user and family both need to understand and believe that learning to use AT will improve their quality of life.

Depending on age or impairment of the user, a family may underestimate or overestimate their potential for success. Parents and or caregivers may feel a child is too young, or an elderly person is too old, or an individual is too impaired to use AT. Or they may simply have the idea that as soon as a tool is used, it

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will instantly make the user independent or achieve their overall goals right "out of the box". Families also have the benefit of seeing the user in their home settings - not the unfamiliar or sterile atmosphere of a clinic. Families will have valuable input for the "E" or Environment part of the SETT Framework (Zabala). When a family tells you that the user is very different at home - it is most often the truth! For example, a clinician might observe someone who is aggressive or angry, but at home they are calm and show no behaviors.

FAMILY

Family Involvement:

It is imperative to understand WHY a user wants to begin using AT. Everyone has the desire to communicate and the need for movement. Does the user have one but not the other? If the user's goal and the family's goal match that will be your starting point! If you begin with that specific focus and they are successful, you are much more likely to get continued "buy in." The family will play such a large role in modeling and assisting the user that it is also helpful to guide them through identifying their "why" as well. If they hope he/she can develop greater independence in certain areas, then they will want to see how using the device will help them take steps toward independence, as well as improved quality of life.

Many families may be initially intimidated by the technology behind AAC devices and the bulk or keeping track of mobility devices. Sometimes this may lead to device abandonment or denying something before it's fully implemented during a trial. Clinicians and AT consultants build a family's capacity by providing synchronous and asynchronous training opportunities which can be very helpful. This type of ongoing training will give them the chance to learn in-person, but also have training information to refer back to so they can continue to learn and refresh the material. Depending on their familiarity and comfort-level with technology, they may need initial training in how to access virtual training as well!

Family Needs:

One of the most valuable needs an AT evaluator can satisfy for a family is the need for training. Family members and caregivers are the primary support for the AT user. We should always ask, "what does the family need in order to create a successful environment for the use of the AT?" At times family members have heard negative information or even false information about AT and so the AT evaluator will need to provide education in order to dispel myths and misinformation. This can be done through one-on-one visits and group training, as well as exposing them to content that shares examples of other people who use AT successfully. Even more powerful is connecting AT users and their families with other AT users in their own community.

Build Capacity with The Family:

- Help family members to have a realistic view of how the technology can help
- Involve the family in each step of the AT process from obtaining AT to programming and maintenance
- Create or encourage attendance at family support groups for AT and/or specifically AAC.
- Connecting families with other families using AT is beneficial for continued family involvement
- Have a consistent training plan not only for the initial setup of the AT, but also ongoing training. Families must know where to go for help.
- Setup a "how to" notebook with helpful tips and troubleshooting ideas for their AT. Encourage family members to store it where all caregivers have access.
- Connect the family with the vendor for future training and/or troubleshooting needs.
- Create an AT newsletter to share information about AT training, user spotlights, AT events, and success stories.

THE SCHOOL TEAM/CARE TEAM

Team Perception:

As members of a school team/care team, we often see only a small part of a person's abilities. School teams see and work with students for a large part of the day and the routine and structure of the classroom may present a student who has differing skills than at home. A teacher's perception of a student's cognitive or physical abilities can impact the initiation of trialing AT in either a positive or negative way. It is especially important to help teachers understand that students will continue to do the work, but that AT is helping them do it more independently.

In the clinic, therapists and teams only see the user for short periods of time in a setting that is often new and unfamiliar. It is difficult to make decisions for equipment and devices based on one or two visits. Terminology that is common to therapists may not be understood by a user or family member and cause confusion. For example, asking an ALS client if they have use of their hands may get you the response of "not at all" but your actual observation informs you that they can control several fingers of each hand. Physically going to a clinic can be a stressful, painful, and tiring process that clinicians should take into consideration.

Team Involvement:

Whole team meetings are necessary to provide support to the AT user. A school team should include input from the medical team and vice versa whenever possible. A school team has many professionals working together. What should these meetings look like? This article from ASHA provides a great description. To learn how to best set up and run an interprofessional practice team see this article. Case studies from School teams and private practice can also be found through ASHA's website.

Using tools such as Quality Indicators of Assistive Technology (QIAT) and the SETT process (Student - Environment - Task - Tool) can help guide your team in decision making. Using these correctly encourages and allows all team members to provide input as to how a person completes tasks. With the task break down narrowed, it helps people to understand where the gaps are for the user to be independent.

Team Needs:

During the evaluation assessing the needs of the team may provide valuable insight into whether those needs match the needs of the AT user. Everyone on the team needs to be reflected in the decision-making process and have a voice, and remember you cannot have a team without considering the needs of the AT user as mentioned above.

Building Capacity with the Team: As part of a school team/ care team:

- Training with accountability leads to awareness, understanding, and improved practices. As part of the implementation plan, write down assignments such as who is responsible for charging a device or moving a device from location to location.
- Team communication aids in collaboration. School team, medical team and family should all be in communication and understand the goals.
- Short, consistent training leads to greater understanding. Provide information in written, audio or visual mediums to accommodate different learning styles.
- Modeling helps generate ideas for new opportunities to use the AT
- Training the entire team makes a difference in the use and team support of AT. Consider starting a community group that plans events for AAC users to meet up
- In public places.
- Encourage participation in Miracle League or camps for children who use Assistive Technology

- If you work in the education setting,
  - start a school-wide core word program
  - Increased student usage throughout the schools leads to greater acceptance
    - Lobby or talk to the school board to create inclusive playgrounds
  - Educate your district through the parent and teacher newsletters
  - Educate in schools by placing informational messages in strategic places such as main hallways or by the cafeteria and gym.
  - Create an AT passport
  - Establish AT team meetings and evaluate how you are doing using the QIAT
  - Train your AT Team; ongoing training is a must!
  - Create a position of AT Assistant for eye gaze students
  - Add an AT Implementation Coach
  - Offer multiple means of team trainings
  - Offer 2-5 minute classroom team training
  - Offer AAC Minute Clinics
  - Take advantage of AT vendor training and certificate programs
  - Develop an AT Website as a source for AT tips
  - Train a person in each school to troubleshoot AT
  - Propose including more AT in district professional development

COMMUNITY

Community Perception:

Think about what you consider your "community". Is it your workplace, children's sports teams, your neighborhood or is it an online space? Do you regularly see and interact with people who use AT or AAC? Possibly some people are using AT and you don't know it!

Community Involvement:

Creating more awareness of AT/AAC in all of our "communities" helps everyone! Forward thinking leads to community awareness and change. An AT user, family member, care team, or professional can all give input that can create a difference in their respective communities. Whether the input is given to a store manager, a school principal or a city council, your input is valuable.

Just think, if you or a loved one suddenly needed to use a wheelchair - how much change would be required to include them in regular day to day events? Is your workplace accessible for someone who might need a wheelchair? Do you have the ability to provide materials to a student or employee who is blind or has low vision? Do you know where an accessible playground is in your neighborhood?

During our It Takes a Village presentation at Closing the Gap in 2021, we shared a story from Japan, specifically about the Avatar Robot Cafe. The creators of this cafe have created the most inclusive and accessible restaurant we've ever heard of. It is a demonstration of universal design at its best. The physical space is accessible for anyone with mobility differences. The servers (who might have physical, cognitive or speech differences) control robots from their homes. Who created this amazing space? A person who experienced loneliness and feelings of isolation after repeated hospitalizations. He wanted to make a change and he succeeded!

More and more we are seeing AT users in mainstream media. This is beneficial because it helps to make devices appear as typical and accepted. Actors with physical, cognitive and speech differences have starred in programs such as Speechless (actor with speech and movement differences due to Cerebral Palsy),

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YouTube video - Speechless - Official Trailer -

YouTube video - The Good Doctor - Official Trailer -

YouTube video - Breaking Bad

NCIS New Orleans, and Fear the Walking Dead (actor who was previously independently mobile is paralyzed after an accident and uses a wheelchair) , The Good Doctor (character is an autistic doctor) Zoe's Extraordinary Playlist (character lost the ability to speak), and v (actor with speech and movement differences due to Cerebral Palsy) .

Community Needs:

Now think back to your own community. Whether you are thinking about a large city-wide community or the small community within your classroom, ask yourself, what are the AT needs of those around me and what can I do to make others more aware and involved?

Building Capacity in the Community:

Change starts with you!

- Demonstrate and model acceptance of people using AT/AAC.
- A great article regarding funding for parks and playgrounds can be found here: An Accessible Neighborhood needs Parks
- If you are a therapist, consider joining your state professional organization and create a special interest group for AT or AAC.
  - Attend AT/AAC conferences
  - Join AT or AAC listservs
  - Research AT/AAC podcasts and Blogs

When we work together, build capacity for AT with the AT user, in the family, on teams, and in our communities, we will no longer feel isolated in our attempt to decrease device abandonment and increase independence through the use of AT. Instead, families will feel supported, our village can grow to include a larger community, and those who use AT will feel empowered and accepted.

Let's continue the discussion! We invite all to add to our It Takes A Village Padlet discussion.

Use this link to join in our discussion!

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Switch it up!

Engaging Switch Activities for the Classroom

What motivates you to do things that are challenging both cognitively and physically? I am willing to bet that it is not doing the same thing, under the same conditions, over and over. How boring is that? When humans work to learn and master a new skill, it does require lots of repetition and practice; however, learning the motor and cognitive skills necessary to master new skills requires motivation and understanding that the benefit is worth repeated practice. Teens and adults without disabilities can certainly work to develop these skills through repetition because they often are working toward a specific goal they wish to accomplish. Children learn cognitive and motor skills through play that may either be self-directed or goal-oriented. Play results in moving muscles repetitively to increase muscle strength, speed, and agility, resulting in motor skill and cognitive development. Children consider play fun and will engage in repetitive motor movements because it is "fun", not because it feels like work. Goal-oriented play involves actively using cognitive skills for motor planning and muscle activation to make something specific and rewarding happen (Sutapa P., et al., 2021). The nerve pathways of muscles used repeatedly in play show thickened myelin and better endurance. Sutapa, P., et al., in their research, they found thickening of the myelin, as well as an increase in motor ability and endurance, when children participate in goal-oriented play for at least 12 weeks with a frequency of three times a week.

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For children with disabilities that result in complex motor, communication, and sensory needs, play can be especially difficult. As educators and clinicians, we must create opportunities for children with the most complex needs to regularly and actively engage in play. Research suggests that regular play will strengthen the motor pathways which decreases the cognitive load required to activate the muscles. This enables the child to engage in play because their motor skills have become automatic. This is where teaching movements for switch access become crucial (Burkhart, 2016).

A wide body of research supports that repetition, with variety being the key to learning and retaining new motor skills. Repetition with variety involves making slight changes during repeated play sessions. This helps children master skills faster than playing the activity in the exact same way (Wymbs, et. al., 2016). Celnik, in their research with Wymbs, et al., on Motor Skills Are Strengthened through Reconsolidation reported that, "...if you practice a slightly modified version of a task you want to master, you actually learn more and faster than if you just keep practicing the exact same thing multiple times in a row." So often educators and therapists provide a child with one switch site and one to two activities to practice a new motor skill, and then wonder why it seems there is a loss in motor skill, decreased motivation, inconsistent performance, and lack of cause and effect. In actuality, it has very little to do with the student. As educators and clinicians, we have missed the boat in making the activity play-based, fun, and have failed to build in repetition and variety (Bean, Ian, Switches Away From the Computer, 2022). A great example of doing this well is to use voice output switches, like the Little Mac Step-by-Step, and vary the message based on the task or activity in the classroom.

When providing learning opportunities for students with complex motor, communication and sensory needs, teams need to become comfortable moving out of their "silos." These children require a team that is working together to help the student develop skills to successfully access their world. Every member of the team needs to be working on the student's goals, bringing the expertise from their professional lens. When deciding to work on switch skills with a student, the team needs to start by having the end goal in mind. Why does this child need to learn to use switches? What makes the child want to use the switch? Ian Bean, 2022 stresses the importance of including the following elements into each switch activity: Motivation, Opportunity, and Meaning. He goes on to define Motivation as giving the student a reason to activate the switch, Opportunity refers to providing opportunities throughout the day to use the switch, and your response is the most important factor in creating Meaning to the activity. The children we serve deserve and have the right to accessible reading, writing, math, science, communication, mobility, leisure, social interaction, and play to have a full life. Switches make this possible. Ultimately, it is about developing motor skills for life-long access (Porter, G., 2022).

So how do teams go about implementing active engagement, play-based, and motivating switch activities that include enough repetition and variety within the busy classroom setting? Before jumping into some fun and easy activity ideas, we must first review some dos and don'ts when teaching switch skills.

DO:

- Work with the occupational therapist and physical therapist to get the child and their switches positioned correctly for best access. A supported position that allows for movement is crucial for the child when learning a new access skill. (Kangas, K. How Seating and Access Must be Altered to Support Independent Access to Assistive Technology).
- Explore a variety of switch sites to determine which movements have potential to be taught to the students. This could be head, elbow, knee, finger, hand, or foot - the possibilities are endless. (Burkhart, L., 2016 and Bean, I., 2022).
- Try a variety of switches. Some I like are the Ultimate Switch, proximity switches (I really like Glassouse Proximity Switch), pillow switches and button switches.
- Look at the student's day and see how you can incorporate switch access into naturally occurring activities with peers.
- Set the student up for success from the get go! Make sure they can make the magic happen!
- Enthusiastically model and explain to the student what you are expecting them to do and what the switch is going to make happen.
- Give quiet, attentive wait time.
- Give them an enthusiastic response once they have made something happen with the switch.

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- Use voice output switches throughout the day to comment, request, or just boss people around.
- Take responsibility if the activity was not successful. It is never the child's fault that what we dreamt up did not work. It is our fault for choosing the wrong type of switch, the wrong activity, the wrong set-up, or forgetting to check the batteries!

DON'T:

- Wait for the child to show you where they have the best movement for switch access. You are going to need to evaluate potential body parts and movements that can be shaped into access methods with engaging activities to strengthen the neurological pathway (Cotter, C, Porter G, & Burkhart, L, 2022).
- Use just one or two switch toys or activities all year.
- Have a switch practice session a few times a week.
- Say, "hit the switch." When verbal cues refer to the switch rather than the activity/action the switch is creating, the focus of the activity becomes the switch. Tell them to make the animal go, pour, turn the item on, use the switch to tell me what you think, etc…(Bean, Ian, 2022).
- Keep verbally coaching them while they are trying to execute the motor pattern to hit the switch. This often results in the child having to restart the motor pattern from the beginning. Give at least 10 seconds before requesting/encouraging. This is so hard!
- Get stuck in believing that the student does not know cause and effect. All humans are born with cause and effect. Model, demonstrate, and choose a switch and location that you know will be successful. Presume competence, and if there is a switch activation by the student never assume it was accidental. Presume that it was on purpose and make that a teachable moment. For example, "You touched the switch with your elbow and that made the blow dryer turn on or animal inflate! Let's try it again!" (Kangas, 2012).
- Give up! Ever!

Now that the research and dos and don'ts have been discussed, let's dive into some fun engaging activities. At a minimum, you need a switch and something that it can control to get started, but that's not going to give the child a lot of variety. In looking at putting together a basic switch kit, a Jelly Bean Switch, Spec Switch, and a Proximity Switch are great for getting started. A PowerLink 4 or iClick is a must-have, because anything that plugs into an outlet that has an on/off switch (fan, hair drier, leaf blower, blender, water pick, etc…) becomes switch accessible. The final must-have is a couple of voice output switches with levels (Little Mac Step-by-Step, Smooth Talker). Now you are ready to get started!

My ideal switch kit would include a variety of switches (Ultimate Switch, Jelly Bean, Spec, Proximity, Plate, Pillow, Microlight), PowerLink 4 or iClick, several voice output switches, electrical appliances/devices that you can use with the PowerLink 4 or iClick, switch adapted toys (bubble machine, car, walking animal, musical toy, vibrating pillow, pouring tool, etc…), and a variety of mounting devices. I like the Mogo mounts and the Flex mount for my kit. The Special Education Technology Center has switch kits that can be checked out to school districts in Washington. You can look at their switch kit and use it as a framework when building one for your program. There are several computer and iPad switch activities that are great as well, but for the purpose of this article, the focus is non-screen play, social, and leisure activities.

A must have tool is a Little or Big Mac Step-by-Step communicator (How-to use video). Over the past year, I have realized that this is something that I cannot live without in my basic switch kit for my switch users. These can be mounted somewhere on a student's chair or under their tray table or classroom table. You can then connect the child's switch directly to the Step-by-Step. These can be used to give caregivers/peers directions, comment, count, answer/ask questions, or share about the day - the possibilities are endless! The Step-by-Step allows you to record three different levels (words or phrases in a sequence) of messages. Within each level you can record multiple phrases to make that phrase more interesting. In this video, the student is writing using an Alternative Pencil. She has two Step-by-Step communicators attached with velcro under her tray. Switches mounted on each side of her head have different verbal responses for yes and no.

YouTube Video - Alternative Pencil with 2 voice out put switches under tray

WAYS TO USE VOICE OUTPUT SWITCHES IN THE CLASSROOM

- Comments *(That's Awesome!, I like that!, Let's do it again!)*
- Answering yes and no - use multiple ways to say it *("Yep, that's it, you got it" or "no way, that is a hard pass, nope")*
- Comments about the book during shared reading
- "That's the one." *When doing partner assisted scanning*
- Repeated lines in a book or song.*("Chicka Chicka Boom Boom," "Will there be enough room?", "He huffed and he puffed")*
- Giving caregivers or peers directions *(I like to call these Bossy Buttons)* *Bossy Button video*
- Start the Pledge of Allegiance
- "Turn the page" *When reading a book.*
- Responding when using an Alternative Pencil
- Commanding smart speakers
- Giving command to voice activated robots
- Ready, set, go *for PE, games at recess, or classroom activities*
- Countdown for ending task for center change
- Jokes using a step-by-step
- Interviewing to conduct research on a topic *("I'm doing research can you help me?...Did you go to the beach or mountains or do something different this summer?...Thanks for your time")*
- Playing musical instruments (Band concert playing percussion with head switches and Little Mac Switches)
- Playing parts of favorite song
- Send report of things that happened from school/home
- Playing hide and seek *(Counting on one level) and then "I see you" on another*
- Report on the weather or other calendar activities
- Announcing what's for lunch

Another great tool to use daily in the classroom is the All-Turn Spinner. You can either create custom backgrounds to go on the spinner, or use something as simple as a sticky note to adapt the spinner on the fly. It can be used for reading, writing, math, games, or assigning tasks - the options are endless.

WAYS TO USE A SWITCH ADAPTED SPINNER IN THE CLASSROOM

- Assign classroom jobs *based on student names where the spinner lands.*
- Board games *(Candyland, Shoots and Ladders, Monopoly, etc..)*
- Math facts *(One or two spinners - spin the spinner and see if it gets the right answer to the problem. If using 2 spinners one*

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can be used to choose the math problem and the second to answer. This is great because the student is never wrong, they get to tell the spinner that it is wrong!)

- Book or Song Choices
- Independent writing *(Phrases related to the topic and write what the spinner lands on to make silly writing).*
- Alphabet or Phonemic Awareness *(Work on the letter or sound that the spinner lands on)*
- Ingredients for a smoothie
- Choosing a color for art or drawing
- Science experiments
- Any choosing activity

The PowerLink 4 and iClick allow students to access and operate real world appliances in real world situations (such as cooking, turning on and off a mixer, etc…). With either of these tools, any electrical appliance/toy with an on/off switch becomes accessible using a switch. Using either of these tools is easy. Here is a YouTube video on how to use the PowerLink 4. Spice up shared reading by creating a two -switch, two-function activity using a voice output switch and a PowerLink 4. In this video, the student is engaged in shared reading about the wind and sun. When reading about the wind, he can comment on how windy it is and how hard the wind is blowing. When the wind is the topic of the page, he uses a second switch to activate the "wind guy" to simulate the wind and help make a connection to the text.

Shared reading with Wind Comments and Inflatable Toy

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POWERLINK 4 OR ICLICK ACTIVITIES

Math and Science

- Predicting, Counting and Measuring
  - Making Science Accessible-Part 1
  - Making Science Accessible-Part 2
  - Making Science Accessible-Part 3
  - Learning colors-Glitter Lava Lamp

Sensory

- Banners
- Lava Lamp (See video previous page)
- Animated Light Projector
- Sprinkle a Little Razzle Dazzle
- Fan

Cooking

Food Processor
Blender
Stand Mixer
Hand Mixer
Pop Corn Maker
Ice Cream Maker
Salad Shooter
Electric knife

Art

Adapt a fan for big spin art
Blow drier to move paint or blow something across the paint when doing acrylic pours
Blow dryer to melt crayons

Sports/Recreation

- Tabletop Bowling
- Leaf Blower Bowling
  - How to Video
  - Leaf Blower Croquet
  - Leaf Blower-Yard/Deck Cleaning
  - Leaf Blower Kick Ball
  - Leaf Blower Scarf Chase
  - Leaf Blower to Play Fetch
  - Seven Fun Activities to do with a leaf blower

Game Day Celebrations with Twinkle lights
Penguin Bobsledding (video coming)
Inflatable Yard Decorations
Using a waterpik as a squirting device in water fights.
Use a fan or blow dryer to blow out candles that relight.
Waterpik to water plants
Drill to help with home projects
Sewing machine - work together to sew.
Partner vacuuming

Switch Adapted Pourers are another great resource to add fun opportunities in many academic areas. You can also make your own that is cost effective to get started (How to make your own switch activated pouring tool).

FUN ACTIVITIES USING A SWITCH ACTIVATED POURING TOOL

- Acrylic Pours
- Pouring paint onto spin arts
- Science experiments
- Mixing items to see the reaction
- States of matter (add water to ice)
- Making colors to dye eggs or color the water
- Adding water to make water beads/fake snow
- Pouring into a funnel to fill containers (salt/pepper, etc…)
- Water plants
- Adding ingredients when cooking/baking
- Sand play/sensory table
- Making sand/colored rice art in a mason jar
- Tea parties
- Pouring juice/milk/water for a meal
- Water the dog/cat/classroom pet
- Fill a vase with water for flowers
- Snack portions into bowls
- Pouring popcorn into the popcorn popper
- Filling trucks with items for a peer to move

These are only a few of the endless switch activities that can be incorporated into a classroom routine. Add a few throughout the day and you will have your student getting 100's of switch hits a day resulting in increased muscle control, endurance, empowerment and fun!

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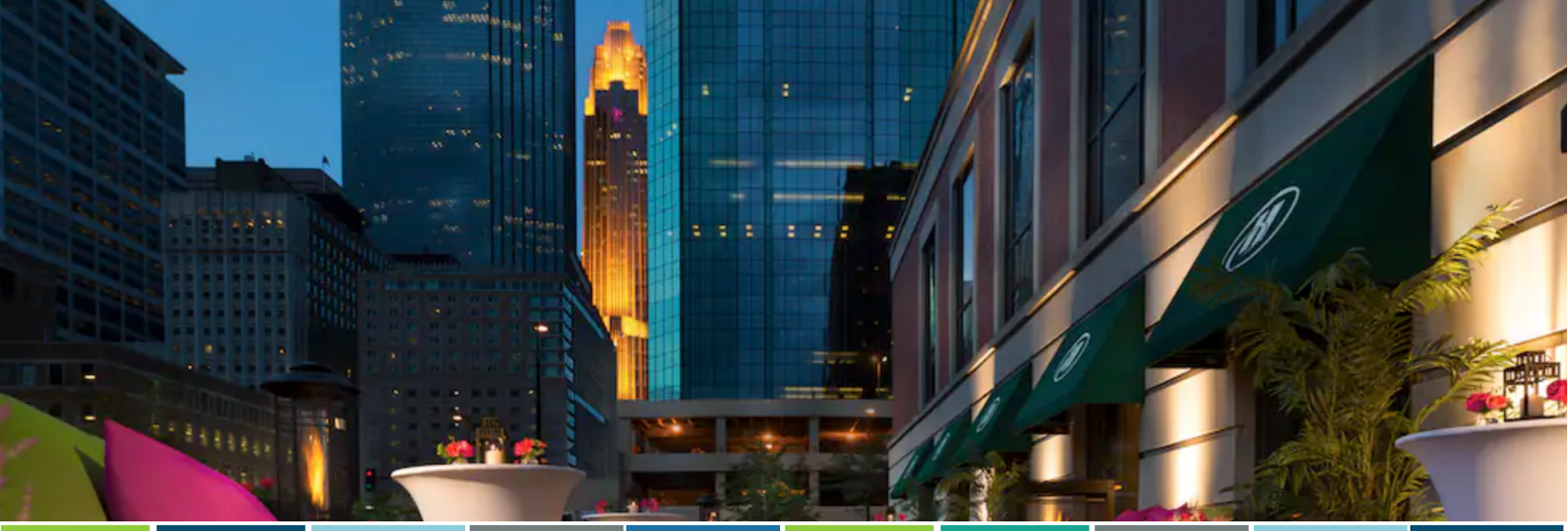

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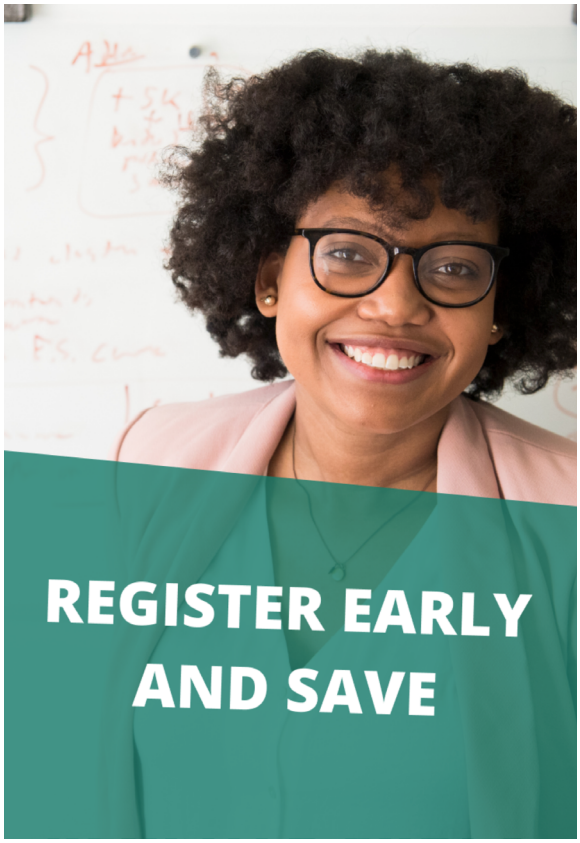

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- When any school district or hospital staff member registers for the 3-day conference, one administrator from that organization can attend the conference for FREE! (Application Required)

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Registration detail, including, group, student and parent discounts... CLICK HERE!!

WEBINARS ON DEMAND


Improving Your School/District AT Service Delivery Through Capacity Building (On-Demand)

By Janet Peters and Gayl Bowser
Recorded: September 13, 2022
Length: 90 Minutes

Education has changed dramatically and one thing we know is that instructional technology must be available, accessible, and integrated with AT accommodations for students with disabilities to have an equal educational experience. This brave new world demands AT leadership, capacity building, and collaboration across special and general education programs like never before.

Leadership, both assigned and emergent, are key to the development or improvement of an AT program. This webinar will explore leadership theory from the Coherence Framework as a tool to build AT program capacity and create systems change. The webinar will use a project-based approach to examine, improve and customize our models for AT services. Capacity building, which is the investment in the effectiveness and future sustainability of any program, will be a focus throughout the exploration of each of the Coherence leadership categories. Technology tools for collaboration, templates, and example processes and policies will be shared with participants.

AAC & Aided Language Stimulation: Teaching Teachers, Paraprofessionals, and Parents the Why & How to Modeling AAC (On-Demand)

By Sharon Redmon
Recorded: Agust 24, 2022
Length: 90 Minutes

QWe learn language by having language modeled. Aided Language Stimulation (ALS) is an Evidence-Based Practice (EBP) in the field of AAC, and it is often one of the first strategies suggested when beginning AAC with individuals with Complex Communication Needs. In this webinar, we will learn why modeling symbolic communication is so vital to AAC users and why it is so hard to implement.

We will also learn simple techniques to teach communication partners how to implement ALS into their everyday routines and curricula in the home, community, and school environments. It may sound like an easy thing to do; however, in reality, our teachers, para's, and parents are struggling with this strategy. Model, Model, Model! Let's learn how to model with Aided Language Stimulation and make it as easy as it sounds!

Questions to Ask Your OT to Optimize AAC Device Use in the Classroom and School Environments (On-Demand)

By Froma Jacobson
Recorded: May 18, 2022
Length: 90 Minutes

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!.

Technology that Improves Two-Way Communication, Advancements in Patient Safety, Patient Experience, and Health Outcomes

Summary:

Ensuring uninterrupted communication between the patient and the healthcare team is a hallmark of best-in-class care. It should be an objective regardless of the patient's ability to communicate. Overcoming barriers to ensure that all patients can actively participate in the decisions that impact them not only improves safety and outcomes, it also can meaningfully impact the overall patient experience.

Every patient is a person with nuances and qualities that are one-of-a-kind. Each patient brings a personal network that surrounds them – in the form of a family, neighborhood, community, and culture – that directly influences their care. Each patient is unique in their abilities – their ability to move, function, and communicate. The qualities that comprise the individual patient have a direct and indirect influence on their experience of care and overall health outcomes.

When care is provided in a way that doesn't account for all the complexities of the patient's health conditions (such as hearing, vision, and mobility impairments), the patient-provider experiences become increasingly difficult. Quality care is ultimately compromised with a significant decrease in patient satisfaction. Fortunately, healthcare policy and technological advancements have improved the care experience for many. These initiatives have created cost-effective opportunities to personalize care in unprecedented ways. However, more is needed to ensure that quality healthcare is equitable and accessible to all.

Regardless of whether a patient arrives at the hospital needing emergency services for acute care, has a scheduled procedure, or receives ongoing rehabilitative therapy services - each patient is entitled to individualized care. Individualized care requires more than a standard one size fits all approach. It should be personalized and accommodate social determinants of health such as so-

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KIUANTA CANTEEN, CANTEEN, MA CCC-SLP/TSSLD, Kiuanta is a multi-state licensed clinician who graduated from the University of Maryland, College Park, MD with a Master of Arts in Hearing and Speech Sciences in 2003. /She holds her Certificates of Clinical Competence with the American Speech-Language and Hearing Association (ASHA) and New York State Teacher of Students with Speech and Language Disabilities. Her clinical experience includes treating both children and adults across the lifespan in the areas of voice and resonance, dysarthria, dysphagia, aphasia, receptive/expressive language, fluency, cognitive-communication disorders (attention, memory, executive functioning, problem solving), and augmentative-alternative communication systems across multiple clinical settings in various capacities, including schools, acute/subacute / outpatient rehabilitation, in addition to community outreach therapy programs. Currently she is the Clinical Education Specialist at EyeTech Digital Systems LLC.

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cioeconomic status, education, social network and familial support, cultural considerations, and language – including dialect and accessibility.

Healthcare providers are tasked with figuring out how to improve health outcomes for all patients- by removing barriers especially for individuals with communication challenges. Providers proactively seek to mitigate financial risk and adverse clinical events. This patient population may be inadvertently discriminated against or placed at a disadvantage due to their vulnerable medical condition. Furthermore, providers are incentivized to reduce the time spent with patients in inpatient settings, since longer stays correlate with an increased risk of complication and a higher cost of care.

Excitingly, advancements made in Augmentative and Alternative Communication (AAC) technology have led to unprecedented usability of AAC devices by even the most critical and impaired patients (i.e., improvements with eye-tracking and software platforms specifically designed for use in health care facilities).

Lack of effective communication tools in healthcare settings, resulting in challenging provider-patient communication interaction has been further highlighted by the complexities of caring for Covid patients in recent years. This innovative technology is revolutionizing the patient experience. It can support the industry's greater focus on health equity for all, potentially improving access to quality health outcomes for individuals and communities.

IMPROVED TECHNOLOGY

In the past decade, technology has made dynamic improvements to the patient care experience. Technology creates a platform to engage in social and cultural advocacy. Healthcare, as a service, has now arrived allowing for individuals to participate and advocate in their own decision-making process. This will create an opportunity for independence with navigating and accommodating critical care management considerations in a dynamic and more outcome-oriented way (see Image 1 – Hospital AAC Technology).

As detailed over a decade ago in A Roadmap for Hospitals, The Joint Commission clarified that "although patients with pre-existing hearing, visual, or speech impairments may arrive at the hospital with their own communication aids or devices, the hospital may need to provide auxiliary aids and services to facilitate communication with patients who experience a sensory or communication impairment due to their current medical condition" (The Joint Commission, 2010). Acknowledging that technology plays a critical role in improving the patient experience, especially in circumstances where a secondary impairment is present, hospitals have a mandated responsibility to ensure patient access to technology in order to meet patients medical care needs.

The Joint Commission recommends that hospitals should "incorporate augmentative and alternative communication (AAC) resources into care delivery to address the needs of patients with communication impairments… use a mixture of low, medium,

Image 1: Hospital AAC Technology

and high-tech resources to provide AAC services, including writing pads, pictorial or communication boards, visual pain scales, speech-generating devices, and adaptive nurse call systems" (The Joint Commission, 2010). The path to ensuring this availability can be done in several ways and suggestions are provided. Another recommendation suggests, "developing a communication kit that includes a combination of writing pads, hearing and vision devices, communication displays, or speech-generating devices that are available at each nurses' station for patients with communication impairments."

IMPROVED ACCESSIBILITY

For patients to benefit from technology in their patient experience, the technology must be accessible.

In order to actively participate in their health care decisions, all patients require effective real-time interpersonal patient-provider interaction. Patients may require AAC technology accommodations across all various levels of care intensity, occurring during hospital (i.e., intensive care units (ICUs), pediatric intensive care units (PICUs), step-down units, neuro-recovery floors) and rehabilitation stay (short- and long-term facilities for speech, occupational, and physical therapy).

The user experience with these technologies enhances the patient care experience. According to The Joint Commission (2010), effective communication is accepted as an essential component of quality care and patient safety.

Language translation services are currently required to be provided by law to all patients receiving care. However, legislation does not stipulate adjustments for language delivery preferences with confidence and clarity. "Under both Section 504 and the ADA, hospitals must provide, at no additional cost, auxiliary aids to individuals with disabilities when necessary to ensure effective communication with individuals who are deaf or hard of hearing or who have vision or speech impairments" (The Joint Commis-

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sion, 2010).

The impact of policy support for communication access has been notable in this post-pandemic era. "The patients who received the assistive technology intervention had a significantly lower incidence of [hospital-acquired conditions] than what would be expected in hospital settings. Clinicians working directly with patients with COVID-19 identified suggestions on how both patients and providers can address the barriers to effective patient-provider communication" (Hurtig et al., 2020).

IMPROVED SAFETY

"The pandemic has exposed a range of health care inequities in the United States, it has also shown that we are unprepared to address patients' communication barriers" (Hurtig et al., 2020). The Institute for Healthcare Improvement (IHI) has advocated for a framework to comprehensively address improved health outcomes through, "The Quintuple Aim." Building on the IHI "Triple Aim" introduced circa 2010, "The Quintuple Aim" responds proactively to the post-pandemic dilemma of clinician burnout and sincere and heightened attention to health equity and communication access."

Since 2010, "The Triple Aim" framework has inspired several healthcare initiatives, as illustrated by the U.S. Department of Health and Human Services (HHS), tying Medicare and Medicaid reimbursements to patient satisfaction surveys. Undoubtedly, patient satisfaction is correlated closely with improved outcomes, meriting this financial incentive.

Stress negatively influences health outcomes. A restrictive communication interaction further complicates an already stressful situation.

AAC devices provide a pathway for improved language expression access that reduces stress and improves the patient experience. A positive patient experience is closely correlated to improving patient health outcomes.

Individuals who cannot communicate are considered "silent patients." They cannot express their basic needs or worse, participate in life-or-death health care decisions (Zubow & Hurtig, 2013). The correlation between communication disorders and patient safety outcomes has been consistently studied throughout the years. In a study conducted by Barlet, et al (2008), patients identified as having communication disorders were three times more likely to experience a preventable adverse event (e.g., medication errors, falls) compared to patients without communication disorders. Beyond acute safety needs, there is evidence that lengthier hospitalizations put the patient at an increased risk of developing a hospital-acquired condition (HAC), resulting in the increased total cost of care during that event. According to the Joint Commission (2010), the start of the initial patient engagement, referred to as the intake process, requires receiving accurate patient information to ensure the appropriate medical assessment to develop an effective plan of care. It is critical that staff address the patient's communication needs before conducting a comprehensive assessment or engaging the patient in care discussions. "Successful communication takes place only when providers understand and integrate the information gleaned from patients and when patients comprehend accurate, timely, complete, and unambiguous messages from providers in a way that enables them to participate responsibly in their care" (The Joint Commission, 2010). Effective two-way communication is essential for health care safety and advocacy. Hospitalized patients who are unable to communicate with their caregivers are at risk for worsening health outcomes.

Healthcare providers can improve and promote patient self-advocacy, by improving the efficiency and efficacy of communication interactions (expressive and receptive communication) for all stakeholders in the care continuum – the patients, care partners, clinical teams, therapists, and others (see Image 2).

Image 2

Clinical teams may also experience less disjointed patient care planning and provide an overall improved comprehensive interdisciplinary patient experience.

Hospitals will realize reduced costs of care, and most importantly, patients will have a less stressful healthcare experience, improved safety measures, and can achieve improved health outcomes. "Reducing communication barriers with this population could also lead to an estimated reduction of 671,440 preventable adverse event cases and a cost savings of $6.8 billion" (Hurtig et al., 2018) demonstrating that effective communication management results in an overall financial impact to this as well.

IMPROVED EXPERIENCE

Hospital systems are investing in the patient experience and dedicating executive leadership to overseeing progress in this area. Many health systems are adding "Chief Patient Experience Officers" and "Chief Digital Innovation Officers" to c-suite leadership teams to further commit to this vision. The commitment to the patient experience provides a necessary focus on whole-patient care, bridging communication and social determinants of health in measurable ways. "A hospital must embed effective communication, cultural competence, and patient- and family-centered care practices into the core activities of its system of care delivery—not considering them stand-alone initiatives—to truly meet the needs of the patients, families, and communities served" (The Joint Commission, 2010).

Patient experience and patient satisfaction can be a direct correlation to quality of care and should always be considered. According to The Assistive Technology Industry Association (ATIA) 2021, patient satisfaction is a reliable contributor to improved health outcomes. Santiago et al., (2021) reported when patients are unable to communicate and participate in their care, they are more likely to report dissatisfaction following a hospital admission. El-Soussi et al., (2015) conducted a study of intubated patients with chronic obstructive pulmonary disease and found that patients with access to AAC strategies while intubated reported higher satisfaction with care and spent less time ventilated in ICUs.

Strategic leadership investment in the patient experience isn't only adding value to the patient experience but could result in mitigating risk and reducing the overall costs of care. In one notable case, Froedtert Health created an entire corporate entity, Inception Health, designed to link customer needs with innovative solutions to improve patient experience and outcomes and decrease costs. "Given the high additional costs associated with treating patients who experience adverse events [hospital-acquired conditions], the costs associated with implementing patient-provider communication as a standard of care could offer hospitals a strong return on their investment" (Hurtig et al., 2020). Furthermore, "malpractice risk can be reduced through improving communication behaviors of physicians, health plan administrators, and other providers. Practice changes, such as interviewing and training and learning methods are key steps to decreasing occurrence of negligence litigation and thus cutting costs for major healthcare centers" (Cole, 1997). Beyond health system investments, advocacy for legislative support to expand translation services to include AAC accommodations is critical for continuing the advancement and broad improvement of the patient experience in the United States healthcare system.

IMPROVED OUTCOMES

Historically, inpatient health outcomes have been indicative of this patient experience correlation, and attention is now expanding to therapeutic outcomes delivered both inpatient and outpatient. This expansion showcases the value of whole-person care beyond the historically transactional service delivery of healthcare in the United States. This whole-person approach is true for technology services as well. Comprehensive AAC technology is not a transactional communication interaction (i.e., blink once for 'yes' and twice for 'no'). It should involve the patient's ability to express their wants, needs, and desires as an active participant in their healthcare decision-making process.

Current guidelines provide a powerful guidance framework aligned with the IHI Quintuple Aim guidelines for improved other health outcomes. Regulatory organizations (i.e., IHI, CMS, The Joint Commission) are collectively leading changes in the industry with meaningful measures to ensure that patients and their support systems are accommodated to meet their communication needs. In order for hospital systems to improve their patient experience, a commitment must be made, encouraged, and incentivized to expand language access services beyond accommodations for individuals who are deaf and/or hard of hearing. Additional accommodations should also include AAC devices for communication.

AAC technology should be versatile enough to be used in any care delivery scenario – whether an impairment is a lifelong disability or an acute health circumstance. Both scenarios should be considered and accommodated to ensure optimal quality care patient experience.

A deliberate focus on expanding access to language and communication that is supported by technological innovation is a strategic investment by healthcare providers resulting in the following: stronger patient self-advocacy, clinical efficiency, clear and confident ROI, and most importantly, improved patient health outcomes.

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Systematic Reading, Spelling and Communication Instruction Without the Drill: Literacy Through Unity

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This article is dedicated to Jane Odom-an inspiration and friend to all. Jane was an educator and avid proponent of robust communication and literacy instruction for students with complex communication needs. She was a strong supporter of Literacy Through Unity and the brains and voice of Language Lab - the place where Literacy Through Unity can be found.

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INTRODUCTION

Professionals have struggled with how to teach reading and writing to students with complex communication needs (CCN) who can't use verbal speech to communicate or read words outloud. However, research in the past 2 decades has identified effective constructivist-based approaches for this population of students. This article will describe a specific research-based instructional solution which integrates literacy instruction with communication instruction: Literacy Through Unity (LTU) (Erickson & Hanser, 2006, Prentke-Romich-Saltillo, updated 2020). LTU has been designed for students with CCN, who are learning to use Minspeak-based augmentative and alternative communication (AAC) devices with Unity. While this article will describe this program and its approach, the principles and lesson structures can be used to teach students who use other types of AAC systems.

LITERACY THROUGH UNITY: THE UNDERLYING PRINCIPLES

The importance of students learning core vocabulary for communication is well documented in the AAC field. Interestingly, these core words are the same words that very beginning readers without disabilities learn to read. LTU is an integrated reading, spelling, and communication program which teaches a combination of these words, for example: I, not, will, on, can, at, mine, want, in, make, have, do, like, eat, drink, more. For the entire list of target words, see the LTU Scope and Sequence on AAC Language Lab (https://aaclanguagelab.com/getting-ready-to-read).

Research with students with CCN found that after going through the LTU lessons, students made increases in word identification, developmental spelling and an increase in number of core words that they could communicate using the different icon sequences (Hanser, 2008). LTU is appropriate for early conventional readers and writers who know most of the alphabet and understand the fundamentals of reading and writing. LTU is NOT appropriate for emergent readers and writers who are exploring print and learning about the purposes of reading and writing.

The program's underlying teaching philosophy is grounded in evidence-based practices for students without disabilities. In LTU, students are encouraged to make mistakes and develop problem solving skills with the expectation that progress will be made over time. The lessons are recursive in nature. If students don't understand a specific concept, it will be reviewed in later lessons. The program is based on repetition, but with variety. The same skills are taught across a variety of different types of lessons. Another key principle of LTU is giving instructional feedback to students after each of their attempts, regardless of the correctness of their answers. Instructional feedback builds students' understanding about why their answer is correct or not correct. This is different than telling a student to try another answer when they got something wrong - Which may encourage guessing. In contrast, when the appropriate instructional feedback is given to students who make errors, it helps students understand why their answer was incorrect. Additionally, many students are used to getting feedback only when they are wrong. Providing it when they are right reaffirms their thought processes and conceptual understanding about the "why." Another principle in LTU is adult modeling. The adults are encouraged to model to help students understand the "how." Lastly, generalization of concepts is addressed in the lessons. There is a transfer step in the majority of the lessons where students are asked to use something they learned in the lesson to figure out something that was not taught in the lesson. This is taking it to the next level!

LITERACY THROUGH UNITY PROGRAM IN A NUTSHELL

The program consists of 150 structured lessons which are highly scripted to help teachers learn the instructional language, the pace, and the lesson elements. The scripted nature supports professionals who are unfamiliar with literacy instruction and how to teach icon sequencing in Unity based devices. The lessons follow a consistent structure which supports students. In Literacy Through Unity, there are 3 different types of lessons: 1) Word Wall, 2) Making Words with Icons and 3) Making Words with Letters. Each lesson type focuses on a different set of skills centered around a set of core words. Word Wall lessons focus on using the device to read, spell and say the target words. The Making Words with Icons lessons teach students the different icon sequences to say the target words. The key focus of these lessons is not simply about memorizing the icon sequences, rather it is about teaching students the underlying rules and logic to using the multi-meaning icons. Understanding the underlying rules and logic helps students generalize and transfer other sequences not taught in the program. Making Words with Letters lessons are spelling-based phonics lessons modeled after those in Systematic Sequential Phonics They Use (Cunningham, 2005). This phonics approach is ideal for students with CCN because these lessons don't require speech.

The lessons are grouped into cycles; each cycle consists of 3 lessons and are meant to be done in a specific order because they build on themselves. For example: Word Wall Lesson 1A, Making Words with Icons Lesson 1B, and then Making Words with Letters Lesson 1C, Word Wall Lesson 2A, Making Words with Icons Lesson 2B, Making Words with Letters Lesson 2C, etc. The LTU download includes the lessons and the lesson materials. There are different materials for each type of lesson. They will all need to be printed out and organized carefully. Binders and recipe holders are your very best friend! When preparing for these lessons using the letter or icon cards and the word sort cards, professionals need to consider how students will access these items during the lessons. The cards need to be presented in the format that is easy for students to access. Some students may

use their hands to point and move the cards, while others may need to have them presented on choice boards or pocket charts. Students who cannot point with their hands may use eye gaze with the cards presented on an eye gaze frame. Students who are learning to use switches, may use partner assisted scanning. Whatever method is chosen, needs to be the easiest for the students so they can devote their full attention to the activity and not to the physical access.

There are 2 different versions of the Literacy Through Unity program: Unity 60 and Unity 84. Both can be downloaded from the Prentke-Romich Language Lab site: https://aaclanguagelab.com/literacy-through-lamp-words-for-life-class. If your students are using LAMP or Wordpower, do not fear! There are versions of LTU for those specific apps. There is a small subscription fee for downloading the many resources and materials on Language Lab.

WHAT IS THE "UNITY" IN LITERACY THROUGH UNITY?

In order to implement LTU, it is important to have an understanding of Unity itself. Unity is based on Semantic Compaction (Baker, 1982) which is a system that uses a static set of multiple-meaning icons to generate words and phrases. The icons are combined in different sequences based on the different semantic, real-world meanings associated with each icon. Using a small set of icons, combined in different short sequences, a student can then say thousands of words and phrases.

Learning Unity is not based on rote memorization of the icons. Instead, associative learning is used to help students learn the meanings of the icons. Icons are easily recognizable, culturally relevant, and are used to communicate a wide range of ideas or topics. Icons have a 1-2 sentence story, also called a rationale, that makes it easier to remember the icon meaning. This is especially helpful for core words which are abstract and difficult to visually represent. The rationales are based on real world concepts. For example, the word "have" is represented by the icon of money. The rationale is: it's good to "have" money. This is a univeral concept and is easy to teach students through hands on activities. Professionals can download the rationale chart from Language Lab (AAC Language Lab - Icon Rationale Chart), that describes the icon rationales. See Figure 1.

AAC language lab

ICON	ICON NAME	RATIONALE
	MONEY	It's good to have MONEY.

Figure 1. Icon Rationale from Language Lab Icon Rationale Chart

Minspeak icons are different from many other AAC systems that use symbols or pictures that have one meaning. In other devices, a symbol of a bed means only the noun, bed. When you think of a bed, what are some associations that come to mind? Maybe you said tired, or maybe sleep, or you may have thought of furniture which then can expand to other related words in that category. These are the types of meanings that are associated with one icon. In order to generate the words associated with an icon, the icon is sequenced with other icons.

Let's look at an example with the APPLE icon. Some of the primary meanings associated with APPLE are: the action 'to eat,' describing the feeling 'hungry,' a type of 'food,' or it can represent various types of food, or other comments about food (i.e., 'yum!'). To communicate these words, the APPLE icon can be combined with grammar marker icons for verbs, adjectives or nouns. You can say "eat" by combining the APPLE icon with the VERB icon. You can state that you are "hungry" by combining the APPLE icon with the ADJECTIVE icon. You can also say "food" by combining the APPLE icon with the NOUN icon. The grammar markers themselves have meanings to help students remember them. For example, verbs are represented by Action Man who is busy working. Nouns are represented by someone looking in a cupboard for something. Adjectives are represented with a paintbrush because you can use it to paint things that you can describe. See Figure 2.

Icons used:	Icon Sequence:
APPLE + verb = eat	
APPLE + noun = food	
APPLE + adjective = hungry	

Figure 2. Chart of related words to APPLE iconChart

Hopefully this icon-based system is becoming more transparent, though you might still be wondering "but why this system and these icons?" First off, as mentioned, these icons have multiple meanings which allows for an infinitely greater generation of words and phrases (i.e., a larger vocabulary- see the expansion examples above). Another key principle of Minspeak is motor planning. The icons live in a fixed location, which helps to create a common pattern for combining icons through motor learning theory and using motor memory. This helps make icons easier to learn, requires less searching for words, and even allows for prediction of how to say new words/phrases. Overall, these things

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help reduce the cognitive load once students have learned the sequences. Teaching students the icon meanings is important to their success. It also helps students learn real world language concepts and related associations that are helpful throughout life.

DIGGING INTO LITERACY THROUGH UNITY LESSONS

WORD WALL LESSONS

Word Wall

What you need to get started:

- Word Wall
- Word Wall Word Cards
- AAC Device

Word walls are commonly used as part of word instruction in both general education and special education classrooms. A word wall is simply a wall of high-frequency, everyday words that are organized alphabetically and displayed for students to see. In LTU, you'll need some type of word wall and the printed word wall words, along with the student's AAC device. Word walls can exist in many different formats, such as on a wall (see Figure 3) or on a trifold made from manila folders (see Figure 4). To be effective, a word wall needs to be out and available at all times so that students and staff can refer to it and teach the target words throughout the day. It needs to be used, otherwise it becomes wallpaper!

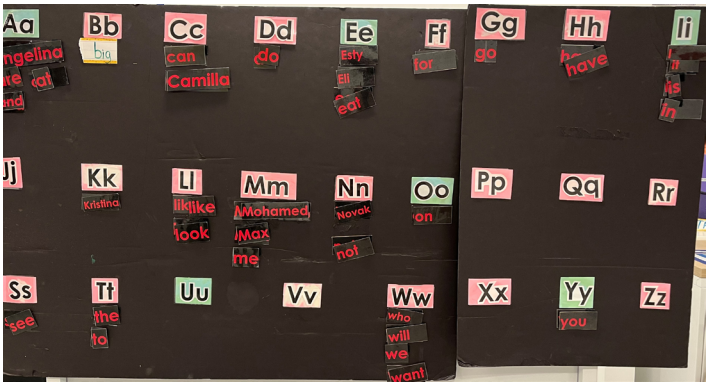

Figure 3. Classroom Word Wall made of Black Foam Core Board and Printed Words

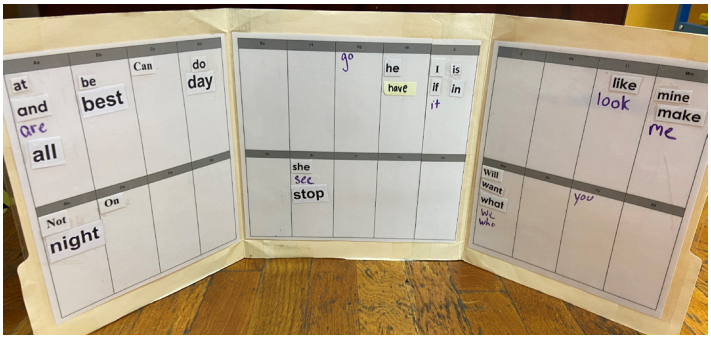

Figure 4. Small Tri-fold Portable Word Wall Made from File Folders

In LTU, the word wall consists of high frequency words for both reading and core vocabulary for communication, such as I, you, not, can, have, will, want, eat, like, more, etc. While students will learn many words throughout LTU, each cycle of 15 lessons is organized around a set of 5 word wall words. In order to provide repetition with variety, there are 5 different types of word wall lessons which become progressively more challenging: 1) Introduce word, 2) Spell and say it, 3) Use in a sentence, 4) Fill in the missing word, and 5) Identify the icon sequence. In each lesson, students are taught to use the device to say the word with its icon sequence, say it in their head and read it with their eyes, and to spell the word using their device keyboard.

If you want to be able to take the words off the wall to show students, it is essential to have 2 sets of words. One set should be permanently glued onto the wall so the words stay in fixed, consistent locations in order to support visual-motor memory. A second set of words can be attached with Velcro over the glued down word. It can then be pulled off to bring closer to students. During all word wall lessons, the adult first models the sequences and provides instructional feedback to students.

MAKING WORDS WITH ICONS LESSONS

Making Words with Icons

What you need to get started:

- Icon Cards
- Icon Sequence Cards
- AAC Device

In the Making Words with Icons lessons, the focus is on the meanings of the icons and the rationale behind the icon sequences in Unity. Each lesson involves five or six icons that are used and combined to form various words/phrases. Each Making Words with Icons lesson consists of 4 steps. These lessons include: 1) Naming icons, 2) Making words with icons, 3) Icon sorting, and the 4) Transfer step of using the device to choose an icon from the lesson to say a word not taught in the lesson. Individual paper icon cards are used for the first 2 steps. See Figure 5. Paper icon sequence cards are used in the third step for the icon sort. See Figure 6. The actual device is used for step 4 when generalization to the device is key. The focus on the icon rationales and understanding of "why" the meanings are attached to certain icons helps to drive motor planning and understanding of the patterns in the sequences. The use of a limited number of paper icon cards in the first few steps allows the students to focus on the visual patterns of the sequences. Since the visual demand is reduced when there are fewer icons to look at, students can attend more efficiently to those icons. Additionally, by targeting a limited set of icons, this allows for more repetition with those few patterns which is key to motor learning. For some students, a pocket chart can be used to keep icon cards and icon sequence cards organized throughout this lesson. See Figure 7.

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Figure 5. Printed Icon Cards

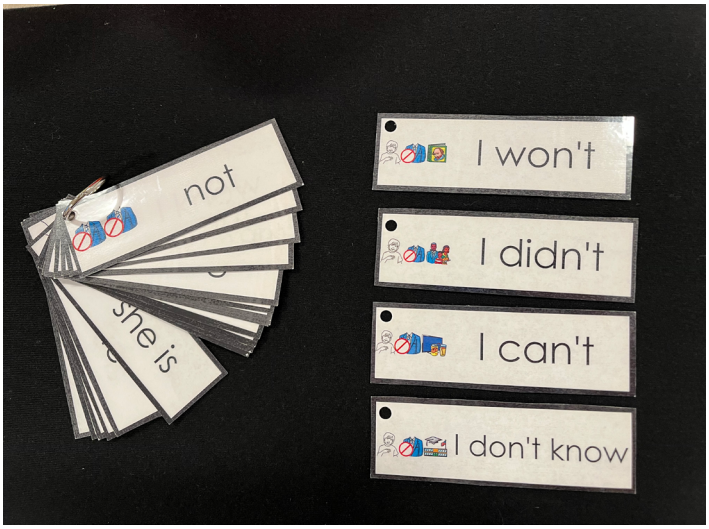

Figure 6. Printed Icon Sequence Cards

Figure 7. Tabletop Pocket Chart from Amazon

NAMING ICONS

During this first step in Making Words with Icons, the facilitator names and reviews each of the icons that will be used in the lesson. This step is the fastest and easiest step for many of our students with CCN since they just need to listen and say the name to themselves - no physical response is required. The facilitator can use the script to guide their instruction. For example, in this step the facilitator would SAY: "You are going to use these icons to make words. I'll say the icon names out loud, and you say them in your head. I, knot, helping verb, can, family."

MAKING WORDS WITH ICONS

During this step, the facilitator guides the students in moving the individual paper icon cards around into different sequences to make different target words/phrases. Students are provided with an example sentence that uses the target word. The sentence often refers to the rationale stories of the icons being used. For example, the student has just made the word "sit" and the facilitator directs him/her to the next word and would SAY: "Take away the icon, CHAIR. Add a different icon to make PUT. Like in the sentence: Put it in the open box." The icon in the sequence for put has an open toy box because you can put toys/items in the box. It is combined with Action Man because "put" is a verb-it's something you do. A key component of this part of the lesson is providing the student with instructional feedback as they manipulate icons and combine them to create new words/phrases. As previously mentioned, feedback is given regardless of whether the student has the correct answer or not. The facilitator can show the correct icon sequence card and say "Let's compare the icons I used" or "I wonder if they are the same as yours?" If the student's answer is correct, the facilitator can model the target word. This helps reinforce the pattern and teach the student why they got the word right. When the student provides an incorrect answer, the facilitator can remind the student of the target word by showing the icon sequence card. The facilitator can then encourage the student to problem solve and to compare the 2 words. The facilitator could say, "How can you make your icons like mine?" while again reviewing the correct order of the icons and providing references to the clues from the sentence or the rationales. The student attempts to compare and change the icons and the facilitator provides models of how to do this and moves onto the next word. See Figure 8 which shows giving instructional feedback for making "put." It is not necessary for the student to produce the correct answer in order to move to the next item. This skill will be worked on in other lessons.

ICON SORT

The Icon Sort is important for learning the icon patterns within the target words/phrases to promote further understanding of the logic of the sequences and how the device is structured and categorized. In this step, the facilitator first helps the stu-

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Figure 8. Providing instructional feedback for how to make the sequence for "PUT"

dent to review the words/phrases they have just created using the icon sequence cards and then sorts them based on common features. This may include sorting for words/phrases made of various categories such as those made of 2 icons, 3 icons, or those with a certain icon included (i.e., the icon for Action Man). See Figure 9. Instructional feedback continues to be an important aspect of this portion of the lesson.

Figure 9. Sorting for words that have the Action Man Icon which highlights the sequence for "PUT." "PUT" was made in the previous step during Making Words with Icons.

TRANSFER

In this final step of the Making Words with Icons lessons, the goal is to help students apply what they have learned (i.e., meanings of icons) to the device. Students are asked to use the icons on the device to form the target words/phrases. This step may be difficult for students as they are now faced with all of the icons on the device, but it helps reinforce both the sequencing of icons in the lesson and also the patterns/locations within words/phrases that are helpful for strengthening motor memory. Remember, this is not a mastery-based program, so if students are experiencing challenges during this step, modeling is the way to go without requiring a correct response. After that, it's important to move on to the next word/phrase because progress is made over time.

MAKING WORDS WITH LETTERS

Making Words with Letters

What you need to get started:

- Letter Cards
- Word Sort Cards
- AAC Device

The Making Words with Letters lessons are based on an effective method of instruction (NRP, 2000) using a spelling-based approach to teaching phonics. LTU combines 2 different types of phonics instruction: a decoding by analogy approach focusing on word families and a synthetic approach focusing on individual letter sounds. With a focus on word families, Making Words with Letters helps students understand patterns. Using decoding by analogy, students learn to apply what they already know about word families to decode new, unfamiliar words. The lessons also focus on combining these with individual letters. Each Making Words with Letters lesson consists of 4 steps: 1) Naming letter names and sounds, 2) Making words with letters, 3) Word sort and 4) Transferring what was learned to words not taught in the lesson. Paper printed letters (See Figure 10) and word cards (See Figure 11) are used for the first 3 steps so that the focus is on seeing the letters and the patterns. As mentioned earlier, during these lessons, the cards need to be presented in the easiest way for students to access them. As mentioned in the icon lessons section, tabletop pocket charts can be extremely handy for Making Words with Letters.

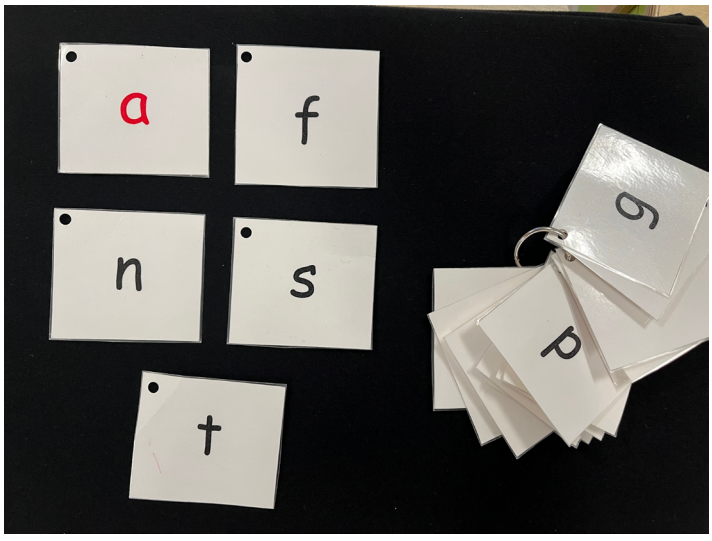

Figure 10. Letter Cards

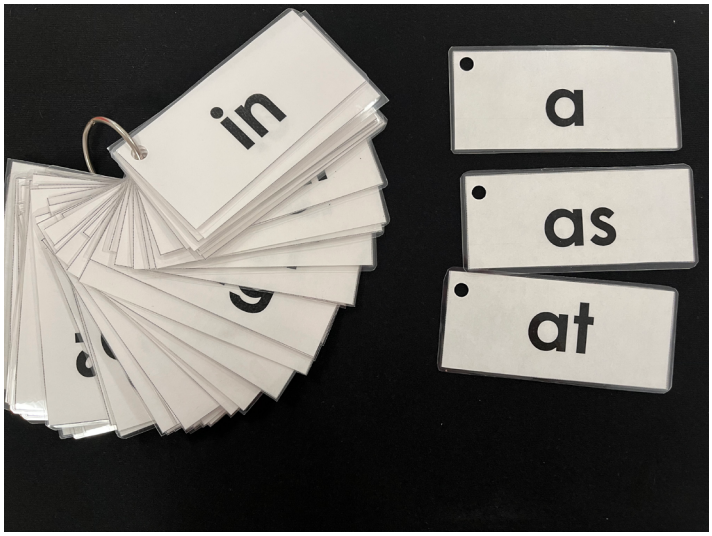

Figure 11. Word Sort Cards

See Figure 7. The lesson structure mirrors the organization of the Making Words with Icons; however, the content is different as it focuses on reading and spelling.

NAMING LETTER NAMES AND SOUNDS

In the first step, the facilitator reviews each of the letter names and sounds that will be used in the lesson. Since students with CCN don't use verbal speech, the naming of the letter and its sounds are approached differently. Students are asked to say the letter names and sounds "in their head." Students who are participating in the LTU program should already have a reasonable understanding of letters; therefore, the goal of this step is to quickly review the names and sounds of the letters. It would NOT be appropriate to ask students to identify the letters or point to them as a way to test students on their knowledge. This step is meant to be easy for the student as it requires no output and works off skills the student already has. To help move through the lesson, facilitators can follow the scripted lesson. For example, in this step SAY: "We're going to work with some letters to make different words. I'll say the letter names out loud, and you say them in your head: a, d, h, n, s."

MAKING WORDS WITH LETTERS

In the next step, the facilitator guides the students in using the individual paper letters to make different words, one at a time. When introducing the word, the students are given a general direction and a sentence using the word for context. The scripted lesson tells the facilitator what to say. For example, "Using the letter cards we are going to make lots of words. Take two letters and make the word at. We met for school at the bridge." Many of the sentences incorporate the rationale for the icon meaning. As previously mentioned, a tabletop pocket chart is a nice way to manipulate the letters during this step. The place where the words are made can be outlined to give visual clarity.

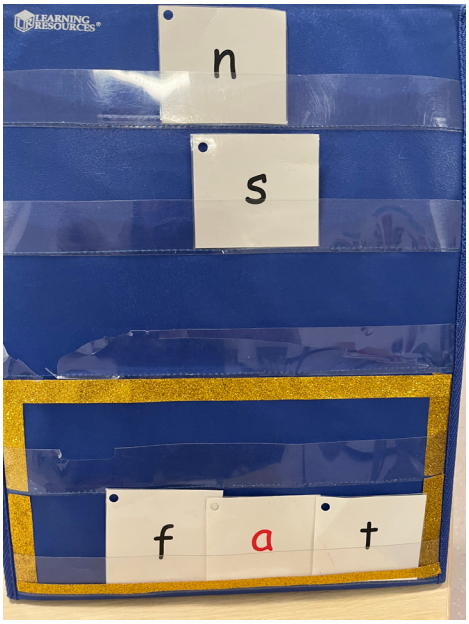

Figure 12. Tabletop pocket chart setup for Making Words with Letters. Word making area is bordered by gold tape.

See Figure 12. As with the other types of lessons, instructional feedback continues to be an important element. After each word attempt, the facilitator shows the model word and compares it to the student's attempt.

WORD SORT

In the word sorting step, paper word cards are used that represent the words that were made in the previous step. The facilitator and the student review these words. and then the student sorts them based on a variety of features, such as the initial consonant, final consonant or the word family. See Figure 13. As in previous steps, instructional feedback is provided after each student attempt.

TRANSFER

The last step in this set of lessons is to transfer the letter sounds students have just learned to new words that were not directly taught in the lesson. Students are presented with a new word and are asked to find a target letter from the lesson. Students are asked to use the keyboard page on their AAC device to identify the sound. It is exciting for the facilitator to tie everything together and for the student to show off his/her skills!

HOW DO I KNOW IF THIS IS WORKING?

As students progress through the lessons and manipulate letters, they become familiar with the format and the language used to support them. Students may not be able to identify correct answers immediately, but there are subtle indications that show student learning. Through structured LTU activities, students demonstrate progress as the lessons progress and the ease and understanding of the icons creating words/phrases

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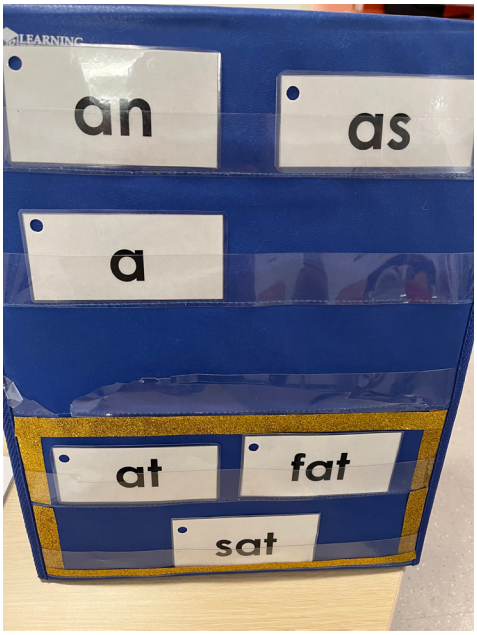

Figure 13. Sorting for words that have /at/

or the letters creating words. With consistency and familiarity, students may show that they are using their internal voice. They might point to their head as the facilitator says, "I'll say it out loud, you can say it in your head" as this becomes a definitive and supportive way for students to process the information without verbal language. One exciting component is when teachers and therapists see students carry over to other literacy activities throughout the day. For example, during a writing activity, they might see the student turn to look at and study the word wall without prompting. Students might start to identify words during reading or read words in the same word family. Witnessing growth and interest in independent reading helps showcase the skills the student is learning in addition to further strengthening them. They may show increased interest in easy-to-read books. During independent writing, students may start to do very beginning sound spelling where they include one sound from a word they are trying to write. Students may start to communicate some of the target core words in activities outside of the lessons. In the same vein, with consistent LTU instruction provided, students demonstrate long-term building of skills. For example, over a 3-year period, one student showed significant progress in a 12-word developmental spelling assessment. Before starting LTU, the student was only able to correctly identify the initial consonants in 4/12 words. As the student progressed through the LTU lessons, she developed as a semi-phonetic speller. She was able to identify and write initial and final consonants, and started to include vowels in target words. Change occurs over time!

FOR STUDENTS THAT DON'T USE UNITY BASED PRC DEVICES

Not all students use Prentke-Romich Communication (PRC) devices to communicate. However, the word wall words targeted in LTU are common core words that you can find on many devices with a core page. You can use these words to make your own word wall so that you can still utilize this program with your students. Just make sure the words are fixed to the wall so they remain consistent for the students to help with recognition and familiarity. Additionally, there is another literacy and communication program called Getting Ready to Read, that may also be helpful for students who do not have a device with Unity software. This can be found on the AAC Language Lab website and helps not only with word recognition (i.e., for Word Wall lessons), but also sequencing (i.e., for Making Words with Icons lessons), as well as decoding and spelling (i.e., for Making Words with Letters lessons). If looking for more support for the Making Words with Letters lessons, you can check out books by Patricia Cunningham. Her Making Words lessons, along with the script provided for Literacy Through Unity, can also be helpful. Readtopia (by Building Wings) also has word instruction lessons which may be useful for students who are not using a PRC device or even students who do not have a device.

TIPS FOR IMPLEMENTATION

When using LTU, it is important to refrain from "drilling" students. Instead, students should be allowed to experiment on their own as they learn new letters and sounds and build on the knowledge they have. Being consistent by doing lessons every day is helpful for both the students and facilitator as the routine of the lessons and expectations of what to do in each lesson becomes familiar.

LTU may be difficult for one person to teach a student on their own. It is a good idea to split the different lessons among different team members, such as between the teacher and the speech therapist. SLPs play a significant role in teaching students how to use their AAC devices and are well equipped to teach the lessons in LTU, especially the lessons that focus on teaching students the multi-meaning icon sequences in Unity. Teachers can teach the Word Wall lessons and the Making Words with Letters lessons. In addition, with proper training and support, a paraprofessional or parent can teach the lessons. It is important to note that LTU is NOT a comprehensive literacy program. It is a single word instruction program. Therefore, this word instruction is not enough! Students need to use the word reading skills they are being taught by having opportunities to read easy books as well as opportunities to freely write with the full alphabet. When looking for appropriate books, a great resource to check out for easy reading and age-respectful books is www.tarheelreader.org. Just remember to not have students read books by saying the words one by one on their AAC device because this interrupts their fluency. Instead, support the student in reading it with your eyes and say it in your head.

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CONCLUSION

Literacy Through Unity (LTU) is an integrated reading, spelling, and communication program (Erickson & Hanser, 2006 & Prentke Romich-Saltillo, 2020) which has been designed for students who are learning to use Minspeak-based communication devices. It is a refreshing, spelling-based approach to teaching phonics to students with CCN that doesn't require speech, while also teaching them how to communicate with their device. The lesson routines are scripted and consistent for the facilitator, which helps the students know what to expect. The 3 lessons focus on different important components of phonics instruction partnered with robust AAC. Instructional feedback is an integral component of students learning from their mistakes and then retrying with the support and application of the feedback provided. LTU reminds us that early conventional reading instruction can be fun – WITHOUT the drill!

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product spotlight

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Nintendo Switch Gaming – Flex Controller

Flex Controller is made by Pretorian Technologies and it's a new and exciting addition to the disabled gaming community that allows gamers to use external switches and joysticks to play video games on Nintendo Switch. Flex Controller may also be used for gaming on a Windows 10 PC. Please note that the Nintendo Switch must be in its docking station to allow the Flex Controller to be connected.

Any switches that terminate in a 3.5mm jack plug may be used- for example Pretorian's Smoothie 75 and Smoothie 125. The joysticks, if required, need to be Optima Joysticks or one of the compatible Hori controllers (see compatibility list below). It is expected that Ultra Joystick and others from the Pretorian range will be added in the future.

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