Assistive Technology Resources for Children and Adults with Disabilities

# Closing The Gap Solutions

December, 2024 / January, 2025
Volume 43 - Number 5

www.closingthegap.com

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

**CONTACT INFORMATION**
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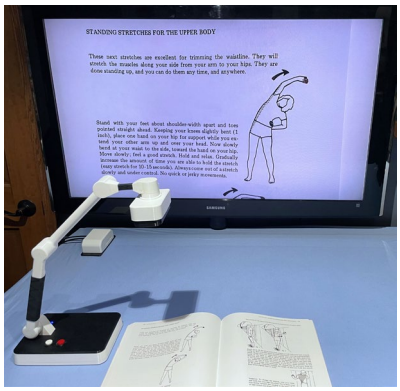
volume 43 | number 5



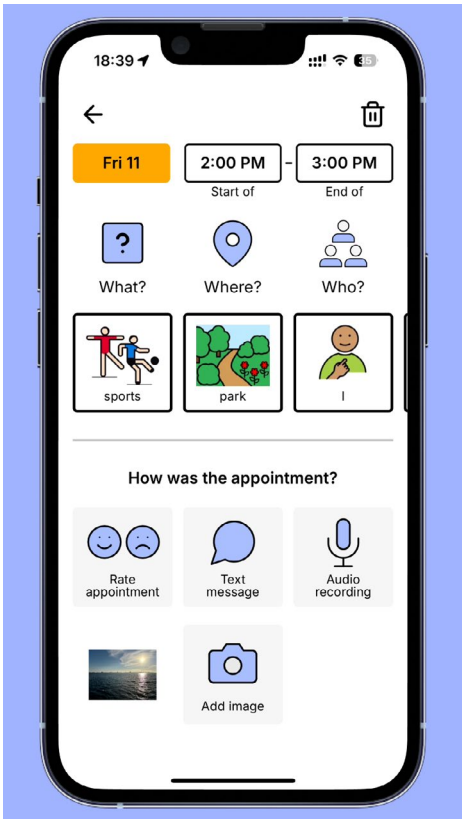










# Exploring the Role of Part-Time AAC Users: Bridging Gaps in Communication

**Summary:**

The article "Exploring the Role of Part-Time AAC Users: Bridging Gaps in Communication" will examine the challenges and benefits faced by part-time AAC users. It will begin by sharing an example of a part-time AAC user and explore reasons to consider part-time AAC. The article will address barriers to AAC access, ableism in implementation, and strategies for supporting users, concluding with advocacy efforts to ensure accessibility for those who would benefit from part-time AAC use.

When Major was 3 years old, he received his first speech-generating device. His parents took him to speech therapy because his speech was highly unintelligible. After beginning traditional therapy techniques, his speech therapist didn't want to delay his language development any further and recommended an augmentative and alternative communication (AAC) device.

At first, Major's parents weren't thrilled about the device. They wanted him to communicate with spoken language. Over time, they learned more and accepted the device as an alternate means for Major to communicate. However, by the time he was 9 years old, Major no longer wanted to use the device. He was frustrated when others couldn't understand his speech, but he still wanted to communicate with that modality. His parents sent him to a week of AAC camp to see if being around peer models might help him appreciate his device.

After the first day of camp, Major came home to his parents and said, "I found my people!" He was thrilled to be around so many other AAC users. Major loved to show off his device, which had been programmed with phrases from a game he played, casting spells on his friends with words from the device. Although Major communicates with spoken language part of the time, he needs his AAC device to be able to interact with others,

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especially when using some of his favorite, decontextualized language.

Major represents a more traditional view of part-time of AAC use held by many speech therapists, serving individuals with severe articulation or phonological impairments. More recently, there has been a growing voice coming from Autistic individuals who also see a benefit of part-time AAC use for times of dysregulation when their speech is not accessible.

There is a growing recognition of the needs of part-time AAC users—individuals who may speak but find AAC beneficial or necessary in certain situations. Understanding and supporting these users requires a nuanced approach, considering their unique challenges and the educational strategies that can enhance their communication.

## WHO ARE PART-TIME AAC USERS?

Part-time AAC users might be able to speak clearly in certain environments or situations but struggle significantly in other conditions due to factors such as stress, sensory overload, fatigue, or the complexity of the conversation. In particular, Autistic adult researchers have described spoken language as situationally insufficient, meaning the communicator is not able to express everything they wish to. Speech may be intermittent, meaning that the communicator can speak, but not always, depending on the topic or environment. Individuals have described their speech as unreliable, or find themselves expressing a message that does not convey their true intent (Zisk & Dalton, 2019).

## THE COMPLEXITY OF COMMUNICATION NEEDS

The communication needs of part-time AAC users are complex and varied. Unlike full-time AAC users who rely on their devices for all communication, part-time users may switch between verbal speech and AAC depending on the situation. This switching is not always straightforward and can depend on numerous factors such as the user's emotional state, physical condition, the environment, or the nature of the conversation.

For instance, sensory overload is a common trigger that can make verbal communication difficult or impossible for some individuals. In noisy or chaotic environments, a person might find that their ability to speak becomes unreliable, and they may need to rely on AAC to communicate effectively. Similarly, during times of extreme stress or fatigue, speech may become less accessible, requiring the individual to turn to their AAC device.

Moreover, there are individuals whose communication needs vary depending on the topic of conversation. For example, a person might be able to speak fluently about everyday topics but struggle with more complex or abstract discussions. In such cases, AAC can provide the support needed to express thoughts and ideas that might be difficult to articulate verbally.

The variability in communication needs poses a unique challenge for educators and speech-language pathologists (SLPs) working with part-time AAC users. It requires a deep understanding of each individual's triggers and communication patterns, as well as a flexible approach to AAC implementation. This also means that the AAC system must be highly customized and responsive to the user's immediate needs, providing seamless transitions between verbal speech and AAC use.

## BARRIERS TO AAC ACCESS FOR PART-TIME USERS

One of the significant barriers to AAC access for part-time users is the prevailing belief that those who can speak do not need AAC. This misconception can lead to delays in providing necessary support, leaving individuals without the tools they need to communicate effectively in all situations. Additionally, there is often resistance from various stakeholders—parents, educators, and even AAC users themselves—may prioritize verbal speech over AAC, viewing the latter as a last resort rather than a complementary tool.

This barrier is often rooted in deep-seated beliefs about communication and disability. For many, the ability to speak is seen as the ultimate goal of communication therapy, and the use of AAC is sometimes viewed as an admission of failure in achieving that goal. This perspective can lead to a "wait and see" approach, where AAC is withheld in the hope that speech will improve sufficiently to make it unnecessary. However, this approach can be detrimental to part-time AAC users, who might be left without the support they need during critical moments when speech fails them.

Moreover, integrating AAC into general education environments presents another significant barrier. Students may feel self-conscious about using AAC devices, fearing that it sets them apart from their peers. This concern is compounded by the difficulty in motivating both students and educators to fully embrace AAC as part of the communication repertoire, especially when verbal speech is still possible. The challenge is not only technical—ensuring that the devices are available and functioning—but also cultural, requiring a shift in how communication is perceived and valued within the educational setting.

Another barrier is the lack of awareness and understanding among educators and professionals. Many teachers and even some SLPs may not be fully aware of the benefits of AAC for part-time users or may not know how to effectively implement these tools in a classroom setting. This can lead to missed opportunities for support and intervention, leaving part-time AAC users without the resources they need to succeed.

## THE ROLE OF ABLEISM IN AAC IMPLEMENTATION

The reluctance to provide AAC to part-time users is often intertwined with ableism, discrimination, or prejudice against individuals with disabilities. Ableism can manifest in the assumption that verbal speech is inherently superior to other forms of



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communication. This belief can lead to the marginalization of AAC as a less desirable option, even when it could significantly improve an individual's quality of life.

For part-time AAC users, this ableism can be particularly harmful. It may lead to a situation where their need for AAC is dismissed or downplayed, especially if they can speak reasonably well most of the time. This can result in these individuals being forced to rely on speech in situations where it is not effective, leading to frustration, communication breakdowns, and social isolation.

Ableism can also be seen in the attitudes of some educators and professionals who may prioritize speech over AAC, even when it is clear that AAC would benefit the user (Donaldson, et al., 2019). This can create a situation where part-time AAC users are not allowed to fully explore and utilize AAC, limiting their ability to communicate effectively in all situations

Challenging these ableist assumptions is crucial in ensuring that part-time AAC users receive the support they need. This involves recognizing that all forms of communication are valid and that the ultimate goal should be successful communication, not necessarily speech. It also requires a broader societal shift in how we view disability and communication, moving away from a deficit model that focuses on what individuals cannot do, towards an inclusive model that values all forms of expression.

## EDUCATIONAL STRATEGIES FOR SUPPORTING PART-TIME AAC USERS

To support part-time AAC users, it is essential to develop strategies that address their unique needs. These strategies should begin with a thorough evaluation process that involves the potential AAC user, their family, educators, and SLPs. The evaluation should identify communication breakdowns and determine when and where AAC is most beneficial. This collaborative approach ensures that the AAC system is tailored to the individual's needs and that all stakeholders are on board.

A key component of this evaluation involves referring to the Communication Bill of Rights (Brady et. al, 2016). Any rights that the individual does not have access to should be identified as an area of need. SLPs should continue to support communicators to consider AAC whether they need support to "request desired objects, actions, events, and people," or if they demonstrate difficulty with "clear, meaningful, and culturally and linguistically appropriate communications. " Both are rights. Neither should be weighted over the other as a means to provide AAC or not provide AAC. If someone can ask for chips, but can not communicate with the world around them for pleasure, education, or business then SLPs and educators should support the speaker for possible AAC use. A recent study showed it is possible to have insurance fund an AAC device for a part-time AAC user based on their need to access those rights (Koerner, et al., 2023).

Stakeholders must identify the specific contexts in which AAC is most needed. For instance, some users may find that their need for AAC is situational, such as in noisy environments or during times of stress. Others may require AAC primarily for certain types of communication, such as discussing complex or abstract topics. By identifying these specific needs, educators and SLPs can design an AAC system that is both effective and unobtrusive, allowing the user to switch between speech and AAC as seamlessly as possible.

Incorporating AAC into daily activities across all environments is crucial for reducing stigma and promoting acceptance. Light-tech AAC options and text-to-speech tools should be made available to all students, not just those who are not speaking. By normalizing the use of AAC in various settings, educators can create an inclusive environment that supports all communicators. This can be achieved by integrating AAC into classroom activities, encouraging all students to use AAC devices or apps during certain lessons, and modeling AAC use as a natural part of communication.

Furthermore, modeling AAC use is a vital part of the implementation process. Educators, parents, and peers should be trained to model AAC in a variety of contexts, demonstrating how it can be used effectively alongside verbal speech. This modeling should be done in a way that is responsive to the user's needs, particularly when they are feeling regulated and receptive. For example, during a classroom discussion, a teacher might model how to use an AAC device to ask a question or make a comment, showing students that AAC is a valid and valuable tool for communication.

## THE IMPORTANCE OF FAMILY BUY-IN AND CONTINUOUS SUPPORT

Family buy-in is critical to the success of AAC implementation for part-time users. Educators and SLPs must work closely with families to address any concerns and to provide ongoing support as the AAC system is integrated into the user's life. This support includes teaching literacy and spelling skills, offering opportunities for interaction with other AAC users, and ensuring that the AAC system is personalized with vocabulary that is meaningful to the user.

One of the challenges in achieving family buy-in is addressing concerns about the impact of AAC on speech development. Many parents worry that introducing AAC might discourage their child from speaking or lead to a reliance on the device. However, research has consistently shown that AAC does not impede speech development; in fact, it can often support and enhance verbal communication by reducing the pressure to speak and providing a means of communication when speech is difficult or impossible. In addition, advocates for AAC can continue to ensure that all modes of communication are honored and oral speech is not valued above communication with AAC.

Continuous support is also essential in ensuring the long-term success of AAC use. This includes regular check-ins with the AAC user and their family to assess how the system is working and make any necessary adjustments. As the user's needs evolve, the AAC system should be updated to reflect these changes, ensuring that it remains a relevant and effective tool. Additionally, providing ongoing training and resources for families can help them feel more confident and capable in supporting their loved one's AAC use.

Another important aspect of family support is involving them in the customization and updating of the AAC system. Families can provide valuable insights into the vocabulary and phrases that are most relevant to the user's daily life, ensuring that the AAC system remains practical and useful. By involving families in this process, educators and SLPs can help build a sense of ownership and investment in the AAC system, increasing the likelihood of successful long-term use.

## EXPANDING THE ROLE OF TECHNOLOGY IN AAC

Technology plays a crucial role in AAC, and recent advancements have made AAC devices more accessible and versatile than ever before. With the rise of smartphones, tablets, and other portable devices like smartwatches, AAC is no longer limited to specialized equipment; it can be integrated into everyday technology that users are already familiar. This has significant implications for part-time AAC users, who may benefit from having AAC tools readily available on their personal devices.

One of the key advantages of modern AAC technology is its flexibility. Many AAC apps allow for extensive customization, enabling users to create a system that reflects their unique communication needs. For instance, a part-time AAC user might configure their device to include specific phrases or vocabulary that they find difficult to articulate verbally, or they might set up different profiles for different environments, such as school, home, or social settings.

Another promising development in AAC technology is the integration of artificial intelligence (AI) and machine learning. These technologies can enhance AAC systems by predicting the user's needs and suggesting relevant vocabulary or phrases based on the context. For example, if an AAC user frequently uses certain phrases during mealtime, the device might automatically suggest these phrases when it detects that the user is at the dinner table. This kind of smart technology can make AAC use more intuitive and efficient, particularly for part-time users who need to switch between speech and AAC quickly and seamlessly.

The integration of AAC with other assistive technologies, such as environmental control systems or smart home devices, can further enhance the independence and quality of life for AAC users. For instance, a part-time AAC user might use their device to control lights, appliances, or security systems in their home, making it easier to manage daily tasks and communicate needs without relying on verbal speech.

## ADVOCACY AND POLICY: SUPPORTING PART-TIME AAC USERS

Advocacy plays a critical role in ensuring that part-time AAC users receive the support they need. This advocacy can take many forms, from raising awareness about the importance of AAC in the general population to pushing for policy changes that make AAC more accessible and affordable.

At the individual level, advocacy often involves educating families, educators, and healthcare providers about the benefits of AAC and dispelling common myths and misconceptions. For instance, advocates might work to challenge the belief that AAC is only for non-speaking individuals or that it hinders speech development. They may also provide resources and training to help families and educators feel more comfortable with AAC and understand how to use it effectively.

At the policy level, advocacy efforts might focus on increasing funding for AAC devices and services, ensuring that all individuals who could benefit from AAC have access to it. This could involve lobbying for changes to insurance policies, government programs, and educational mandates to make AAC more widely available and affordable. Additionally, advocates might work to ensure that AAC is included in broader disability rights legislation, recognizing it as a fundamental tool for communication and inclusion.

Another important area of advocacy is the promotion of research on AAC, particularly for part-time users. While there is a growing body of research on AAC, much of it has focused on full-time users, with less attention given to the unique needs and experiences of part-time AAC users. By advocating for more research in this area, we can develop a deeper understanding of how to best support these individuals and ensure that they have access to the tools and resources they need to communicate effectively.

Advocacy can also take the form of professional development and training for educators, SLPs, and other professionals who work with part-time AAC users. By providing training on the latest AAC technologies, best practices, and strategies for supporting part-time users, we can ensure that these professionals are well-equipped to meet the needs of this population.

## MOVING TOWARD A MORE INCLUSIVE FUTURE

Part-time AAC users represent a unique group within the AAC community, one that requires thoughtful consideration and tailored support. By overcoming barriers, implementing effective educational strategies, and fostering family and community buy-in, we can close the communication gap for these individuals, ensuring they have access to the tools they need to thrive in all aspects of their lives. As the field of AAC continues to evolve, we must expand our understanding and support of these part-time users, recognizing that successful communication is about more than just speech—it's about ensuring everyone has a voice.



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In moving toward a more inclusive future, it is essential to challenge ableist assumptions and prioritize the communication needs of all individuals, regardless of how they communicate. By embracing a more flexible, responsive approach to AAC, we can empower part-time users to communicate more effectively, build stronger social connections, and participate fully in their communities. This requires a commitment to ongoing research, advocacy, and education, as well as a willingness to listen to the voices of part-time AAC users themselves. Only by working together can we create a world where everyone has the opportunity to express themselves fully and be heard.

## CALL TO ACTION: SUPPORTING PART-TIME AAC USERS

What can you do to support part-time AAC users in your community? Here are a few steps you can take:

1. **Educate Yourself and Others:** Learn more about AAC and the needs of part-time users. Share this knowledge with others in your community, including educators, healthcare providers, and policymakers.
2. **Advocate for Change:** Support policies and initiatives that make AAC more accessible and affordable. This might include lobbying for insurance coverage, funding for AAC devices and services, and the inclusion of AAC in disability rights legislation.
3. **Support Research:** Encourage and support research on part-time AAC use, particularly studies that explore the unique needs and experiences of this population. This research is essential for developing evidence-based practices that can improve outcomes for part-time users.
4. **Listen to AAC Users:** The most important voices in the conversation about AAC are those of the users themselves. Listen to their experiences, challenges, and successes, and use this information to guide your advocacy and support efforts.

By taking these steps, you can help ensure that part-time AAC users have the tools and support they need to communicate effectively, build meaningful relationships, and participate fully in their communities.

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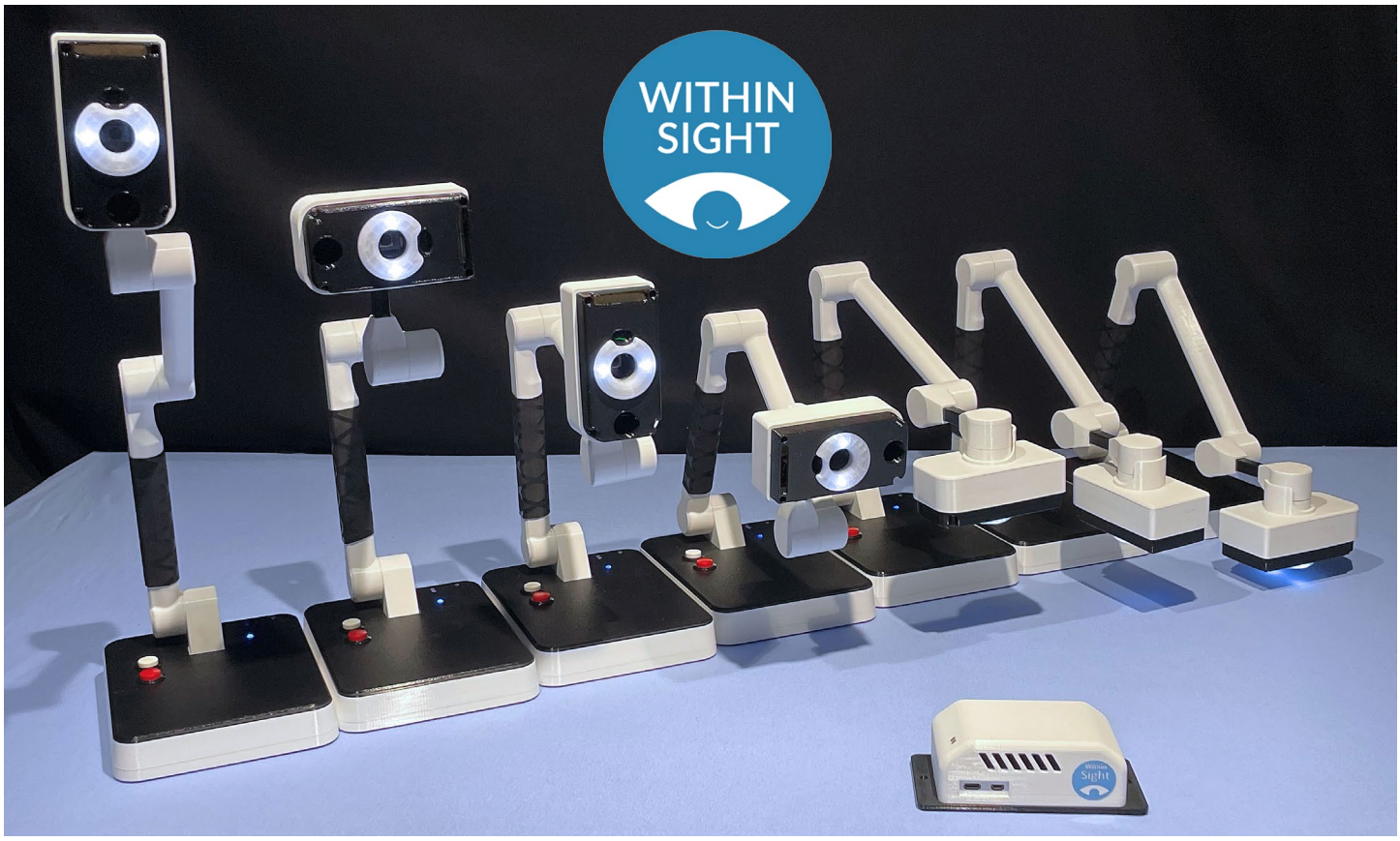
# Seeing Independence Clearly:

## The WS1 and Within Sight's Visionary Journey




Easily changing the position of the articulated arm and camera rotation of the WS1 allows the user to magnify items and still be hands free. The receiver module in the foreground is all that is needed to plug into your HDMI monitor or TV for wireless magnification.

**Summary:**

Richard Teynor founder and CEO of Within Sight LLC. discusses the inspiration behind Within Sight's WS1 came from a deeply personal place—a desire to help his mother maintain her independence as she battled AMD. He discusses the challenge of designing a simple magnification device utilizing the latest technology for people that have age related macular degeneration and low vision. He discusses the needs and wants of this group of people and explains how he arrived at the design of the WS1

**RICHARD TEYNOR** is the founder and CEO of Within Sight LLC. He is experienced in Product Design, Machine Design, and Automation. He earned an advanced degree in Industrial Design with emphasis on ergonomics, product design and design engineering. He has years of experience in higher education teaching and mentoring engineering, design and business students. He emphasized experiential learning focusing on research and universal design in his teaching. The inspiration behind Within Sight's WS1 came from a deeply personal place—a desire to help his mother maintain her independence as she battled AMD.





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## BRINGING FOCUS TO INDEPENDENCE: A NEW PERSPECTIVE ON EVERYDAY LIFE

Imagine trying to navigate your daily life with a permanent fog in your vision—everything is just slightly out of reach, not quite clear enough to fully grasp. This is the reality for millions of people living with Age-Related Macular Degeneration (AMD) or other forms of low vision. Tasks that once seemed mundane, like reading a recipe card, checking the expiration date on a carton of milk, or setting the right temperature on the oven, become monumental challenges. It's as if the world has become an intricate puzzle, and the pieces are forever shifting.

But what if there was a way to bring that puzzle into focus, piece by piece, until the whole picture became clear again? "The right tool for the job" is the old saying that can be applied to assistive devices for those in need. Use the proper tool for the task at hand was the design challenge for people with AMD and low vision. The task at hand was to design an assistive device that could empower visually challenged people to keep their independence. Within Sight's approach is design where innovation meets empathy, and where tools are designed not just to function, but to transform lives. At WithinSight LLC, we believe that the right tool can illuminate the path to independence, and we've made it our mission to create that tool for those whose vision has become obscured by AMD and low vision. Our journey led us to develop the WS1, a device that doesn't just aid sight—it empowers independence.

## A CLOSER LOOK AT AMD: UNDERSTANDING THE IMPACT

To understand the importance of assistive technology like the WS1, it's essential to grasp the scope of the challenges posed by AMD and low vision. According to the National Institutes of Health, approximately 20 million Americans aged 40 and over are affected by AMD. This condition primarily impacts the elderly, with the prevalence skyrocketing among those aged 80 and above, where 35% of individuals experience some degree of vision loss due to AMD.

But statistics can only tell part of the story. The real impact of AMD is felt in the day-to-day struggles of those living with it. Imagine a grandmother who can no longer read her favorite books or a grandfather who struggles to see the faces of his grandchildren. The emotional toll of losing the ability to engage with the world in the way one is accustomed to can be profound. That's why assistive devices are more than just tools—they're lifelines, offering a way to reconnect with the world and regain a sense of self-sufficiency.

## SHINING A LIGHT ON THE PROBLEM: THE BIRTH OF WITHINSIGHT

The inspiration behind WithinSight's WS1 came from a deeply personal place—a desire to help my mother maintain her independence as she battled AMD. My mother has always been the heart of our family, especially in the kitchen, where she spent countless hours crafting meals and baking treats. But as her macular degeneration progressed, the tools she had relied on for years, like her old tech desktop magnifier, were no longer up to the task. Watching her struggle to read recipes or adjust the oven's temperature was heartbreaking. It was clear that she needed something more—a device that could help her see clearly and continue doing what she loved without relying on others.

After my father passed away, my mother's vision struggles became even more pronounced. Without her partner by her side who were her eyes, the loss of her sight became more than a physical challenge—it was an emotional burden as well. She was frustrated, feeling as though her independence was slipping away. It was then that I knew I had to do something. I set out to create a device that would restore her ability to see clearly and, with it, her confidence and autonomy.

## THROUGH MY MOTHER'S EYES: DESIGNING FOR REAL NEEDS

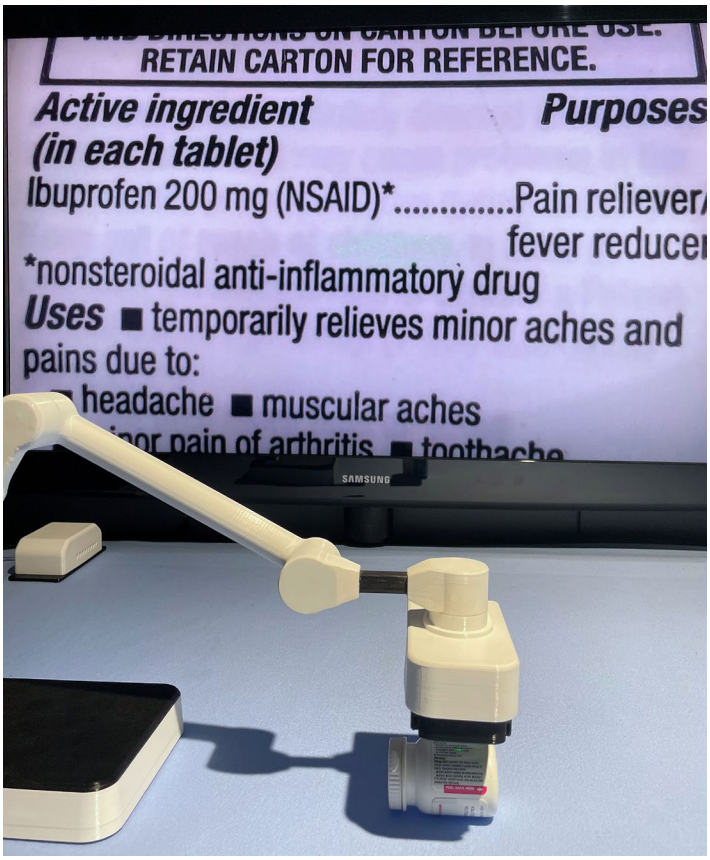
Designing the WS1 was a journey that began by stepping into my mother's shoes—or rather, by seeing through her eyes. People with AMD often experience difficulty when trying to focus directly on an object, as central vision is typically the first be affected. However, peripheral vision can sometimes provide a way to navigate the world. For my mother, this meant she needed large, high-contrast text displayed at a distance that she could comfortably see without straining her remaining vision.

People with AMD have a difficult time seeing when looking directly at something. Many see their central vison as being out of focus or blurry while others see a gray or dark area. They may also see from their peripheral vision depending on the severity of AMD. To read things from ones peripheral vision, the items need to be magnified and have good contrast and brightness. My mother's particular need for reading text was for her to be within a few feet of a monitor and the text needed to be at least 3 to 4 inches in height on the screen.

But her needs didn't stop at just the visual aspects. My mother, like many seniors, isn't comfortable with computers, complicated software, or the internet. She wanted something simple—no bells and whistles, no steep learning curve, just a straightforward device that she could use intuitively. The WS1 needed to be durable enough to withstand the rigors of a kitchen environment but also user-friendly enough to operate without a manual.

## FROM CONCEPT TO REALITY: BUILDING THE FIRST WS1 PROTOTYPE

The first step in bringing the WS1 to life was creating a prototype that prioritized simplicity and usability. The goal was to make the technology work for the user, not the user trying to figure out how to use a device. We started by combining a camera with a wireless receiver, both powered by a powerful sin-




The WS1 can magnify up to 40X for checking prescription and medication.

gle-board computer. This setup allowed the WS1 to function as a standalone system, eliminating the need for external Wi-Fi or a computer. The camera is mounted on an articulated arm, which could be adjusted to capture the best possible angle, while the receiver connected to any HDMI monitor or TV.

For my mother's setup, we chose an older 46-inch TV, which we mounted on a blank wall in her kitchen. The initial system worked well, but as she used the WS1, it became clear that there was room for improvement. My mother's feedback, along with input from other seniors in our focus groups, was invaluable in refining the WS1. These focus group members, many of whom used the WS1 to view photos and videos of their grandchildren, provided insights that helped us make the device even more user-friendly and effective.

The WS1 is at home in the kitchen helping read recipe cards and books, measuring ingredients, and checking controls for oven and kitchen appliances.

## ENHANCING THE VISION: ITERATING ON THE DESIGN

With each iteration, the WS1 became more refined, incorporating feedback from real users to address their specific needs. For example, we learned that digital zooming, while convenient, often degraded image quality. Instead, we opted for an optical zoom system, where users could adjust the camera's physical distance from an object to achieve the desired level of magnification. This approach maintained the clarity of the image, even at higher levels of zoom.

Another important improvement was the incorporation of laser and edge detection technology to ensure a crisp, clear focus every time. This feature, combined with an intuitive manual focus button, gave users the flexibility to adjust the image as needed without introducing complexity. LED lights were also added to the system to enhance visibility in low-light situations—a common issue in home environments.

## A CLOSER LOOK: THE WS1'S FEATURES AND FUNCTIONALITY

So what exactly does the WS1 bring to the table? At its core, the WS1 is a wireless, self-focusing camera system that broadcasts to a receiver, which can be plugged into any HDMI-compatible monitor or TV. With the ability to magnify images up to 40X, the WS1 offers powerful visual enhancement in a plug-and-play package. No software installation is required, no internet connection is needed, and there are no tangled wires to deal with—just a straightforward, user-friendly device.

The system excels at focusing on rounded or oddly shaped objects as long as the object is sitting motionless. If the automatic focus needs a little adjustment, users can simply press a large, easy-to-find button to manually refocus the image. The camera also includes LED lights that can be turned on with another large button, providing extra brightness in dimly lit environments. The WS1 camera can broadcast HDMI video to the receiver approximately 30 foot line of sight distance if needed.

In use the camera module can be placed on any flat surface. The articulated arm has a reach of approximately 18 inches. The camera unit weighs about 2.6 lbs. The base is weighted so the camera assembly does not tip over at full extension of the articulated arm. The articulated arm joints incorporates friction hinges to hold the arm steady in any configuration. The battery is a powerful 10 amp lithium rechargeable battery.

One of the WS1's standout features is its battery life. The camera is powered by a rechargeable lithium-ion battery that can



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last up to six hours on a single charge, ensuring that users can rely on the device for extended periods without worrying about power. The system also incorporates an uninterruptible power supply (UPS), meaning that even if the camera is unplugged during use, it will continue to operate without interruption.

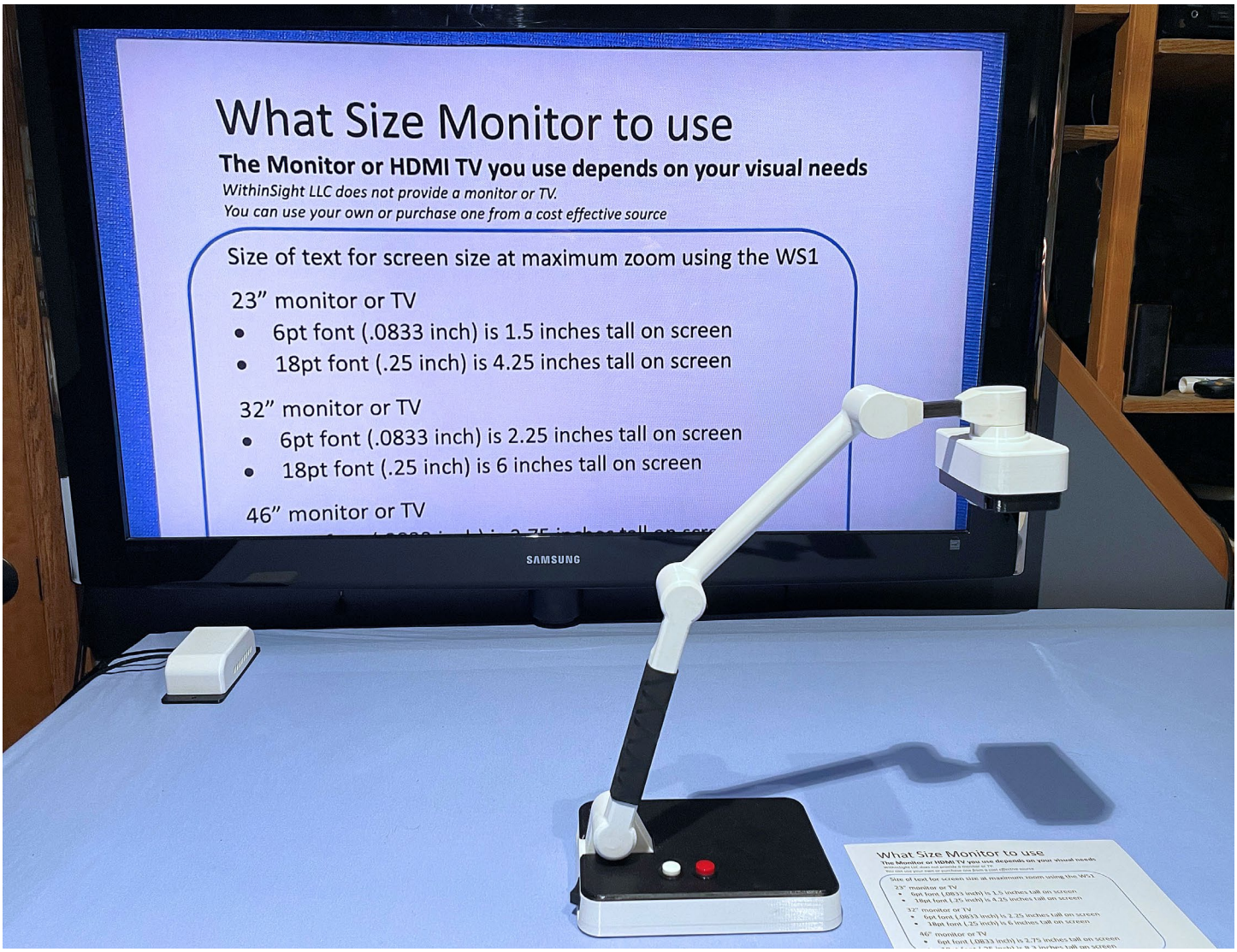
## SEEING IS BELIEVING: THE WS1 IN ACTION

Let's take a closer look at how the WS1 can transform everyday tasks. For example: you're in the kitchen, ready to bake a cake. The first step is reading the recipe, which is printed in tiny, barely legible text. With the WS1, all you need to do is place the recipe card under the camera, the text is magnified on the large screen, making it easy to read. The recipe card or instructions can be zoomed in to by adjusting the articulated arm and camera closer to view the smaller print. Next the ingredients, utensils and pans are gathered. Each ingredient is then viewed to verify correct amount or expiration date.

When it's time to set the oven temperature, you can carry the camera over to the stove, adjust the articulated arm to get the best view of the control panel, and make sure the oven controls and time is set correctly. The WS1's versatility doesn't stop in the kitchen—it's just as useful for personal grooming, reading mail, reading prescription bottles, and reading for pleasure, tying flies for fishing, working on hobbies like knitting or needlepoint, and even playing board games.

But the WS1 isn't just about convenience; it's about reclaiming independence. For many people with AMD or low vision, the ability to perform these everyday tasks without assistance is a game-changer. The WS1 empowers users to take control of their lives, restoring a sense of autonomy that might otherwise have been lost.

The WS1 can be used by any age group that has low vision or AMD. There is minimal training if any to use the system. The only controls are using one switch and two buttons and the ability to




The monitor size used with the WS1 depends on the user's needs. Any HDMI monitor or TV can be used, a smart TV is not necessary. This is a simple guideline when the WS1 is at its max zoom. See the features / guidelines and how to use the WS1 from the downloadable user manual from the website.

move the camera head to position. The imbedded technology keeps the operation of the WS1 simple and intuitive.

## BEYOND THE BASICS: EXPANDING THE WS1'S CAPABILITIES

While the WS1 is designed to be a standalone system, its functionality doesn't end there. For those who want to connect the WS1 to a computer, the device offers even more possibilities. By using an HDMI-to-USB converter, the WS1 can be plugged into a computer's USB port, allowing it to function as a high-quality USB camera. This opens the door to a wide range of additional applications, from remote meetings and distance learning to object character recognition (OCR), video capture, security monitoring, and text-to-speech software.

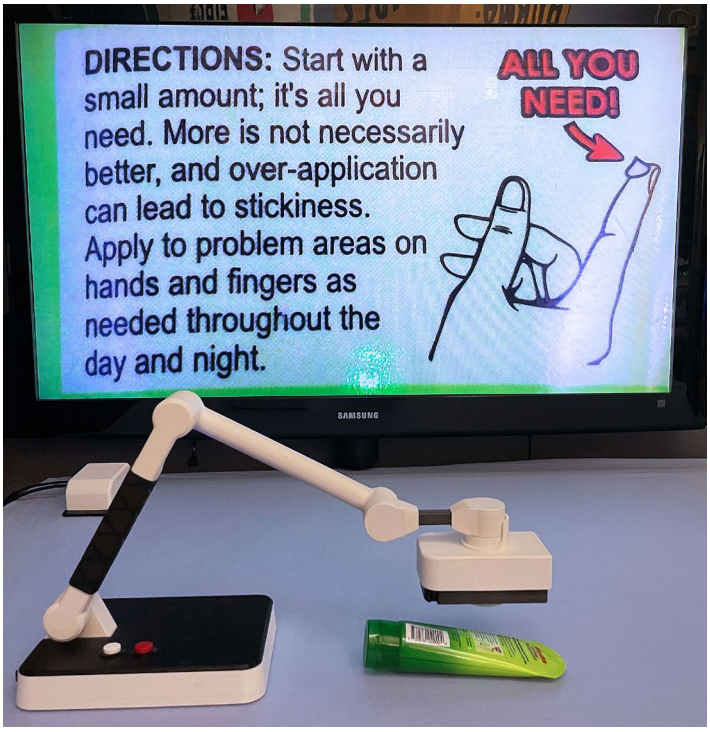
This added flexibility makes the WS1 a valuable tool not just for individuals, but for organizations as well. Schools, libraries, and community centers can all benefit from the WS1's capabilities, offering it as a resource for people with low vision who need help accessing printed materials or participating in digital activities.

## THE AT ACT: A VISIONARY RESOURCE FOR ASSISTIVE TECHNOLOGY

An important resource for individuals with disabilities, including those with low vision, is the Assistive Technology Act of 1998/2004. This legislation provides funding for each U.S. state and territory to offer services to people with disabilities, including access to assistive technology. One of the key components of the AT Act is the loaning library, which allows individuals to borrow devices like the WS1 for a set period of time. This gives them the opportunity to evaluate whether the device meets their needs before making a purchase.

For people with AMD or low vision, the ability to try out devices like the WS1 through the AT Act's loaning library can make all the difference in maintaining their independence and quality of life. The Within Sight WS1 is available to try from many of the AT Act programs. Check with your states or territory's AT Act program to see if the WS1 and other potentially useful devices are available to evaluate. https://www.at3center.net/state-at-programs


The WS1 from WithinSight: Visual Assistive Technology
https://vimeo.com/869746098




Items can be oddly shaped and still very readable using the WS1.

## FUNDING THE FUTURE: HOW TO PAY FOR A WS1

The WS1 is an investment in independence, priced at $3,500. This cost includes the wireless autofocus magnification camera, the receiver module, HDMI to USB convertor, HDMI cable, and power adapters, as well as a 2-year warranty.

For many, finding funding for assistive technology can be a challenge. Fortunately, there are several resources available to help cover the cost of devices like the WS1. The process varies by state, so it's important to check with your local Department of Developmental Disabilities, the Social Security Administration, or Veterans Affairs. While Medicare typically covers durable goods like wheelchairs, it does not extend to video magnification devices. However, other state-specific programs and grants may be available to help offset the cost.

## OUR VISION FOR THE FUTURE: A CLEAR MISSION

At WithinSight, our mission is simple but profound: to harness the latest technology in a way that is intuitive, user-friendly, and designed to meet the needs of people with low vision and AMD. We founded WithinSight with a deep sense of compassion and a commitment to improving the lives of those who struggle with vision loss. Our vision for the WS1 Visual Assistant is to make it a reliable, everyday companion that helps users live their lives with confidence and independence.



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We're not just about creating technology—we're about creating solutions that enhance the human experience. We believe that everyone deserves the opportunity to live independently, and we're dedicated to making that a reality for as many people as possible. The WS1 is just the beginning of our journey. As we continue to innovate and improve our products, we'll keep our focus on what matters most: helping people see clearly and live fully.

If you're interested in learning more about the WS1 or any of our other products, we invite you to visit the WithinSight website. There, you can watch our video, explore the user manual, and find out how the WS1 can fit into your life. You can also reach out directly by emailing rich.teynor@withinsightnow.com. We're here to help you bring your world back into focus.

https://www.withinsightnow.com/ ■

# Switch Skills 101:
## Building Foundations for Alternative Access

**Summary:**
Adaptive switches are essential for individuals with disabilities, allowing access to the environment and preventing learned helplessness. Individuals who need alternative access through switches need to develop switch skills in a learning progression. Building foundations for switch skills through play and games are critical for learning motor patterns and progressing to higher level switch scanning skills. Through targeted activities, switches can support individuals in developing foundational skills for academic and communication tasks.

### INTRODUCTION

Jean Piaget, the influential Swiss child psychologist, famously said, "Play is the work of childhood" (Piaget, 1951). Children with physical disabilities often have fewer opportunities to experience the world and engage in cause-and-effect interactions compared to typically developing children. Adaptive switches provide individuals with disabilities access to various activities and environments that facilitate active participation and prevent learned helplessness. Switches enable individuals to explore and learn about their environment, shaping development in areas such as self-efficacy. They help individuals understand that their actions can produce reactions, reinforcing that they are not only active participants but also active agents in shaping the world around them.

A switch is a device for making, breaking, or changing the connections of an electrical circuit. It is used to turn on or off a device that has been modified. They can be used to access and engage in activities such as computer access, play and leisure, environmental control and powered mobility. Switches can also be used to access academic areas, however, in this article we will focus on how to develop emergent switch skills so that the individual is able to learn motor patterns and functions of switches which builds the foundation to then be able to use switches to access academics and more cognitively demanding activities. While ideally these foundational skills are introduced during childhood, it is never too late to try. The term 'individual' is used to be more encompassing and reflective that all individuals can be supported to develop switch skills.

### SWITCH ACCESS FOR PLAY AND LEISURE

#### SWITCH ADAPTED TOYS

There are many commercially available switch adapted play and leisure activities (See image 1). If commercially available switch adapted items are obtained, then you can use a switch to access them directly into the available 1/8" jack. A toy can come

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Image 1: Touch switches with switch adapted spotty dog slide toy, alligator and bump and go train.

commercially switch adapted or can be modified with a battery interrupter to be used with a switch. A battery-operated toy that has a simple on/off button can be modified for use with a switch by using a battery interrupter (See image 2). A way to test this is to check if you can turn on a toy simply by switching a button to the "on" position, without needing to hold the button down or press multiple buttons simultaneously to keep it on. If so, then it likely will work with a battery interrupter. A battery interrupter is a copper disk that interrupts or stops the current from one end of the battery to the battery terminal. It then is connected to a mono stereo wire with a 1/8" jack for connecting any switch. You can make your own battery interrupters or purchase them from a variety of places such as Ablenet. When adapting a toy with a battery interrupter if there is not enough room for the wire when closing the battery door, then a notching tool can be used to file down a small area for the wire to go through near the battery hatch door. Many toys have multiple buttons and therefore they would not be easily switch adapted. These types of toys can be modified by opening the toy and adding in direct switches and ports. Makers Making Change have a step-by-step article on How to Switch Adapt Toys.

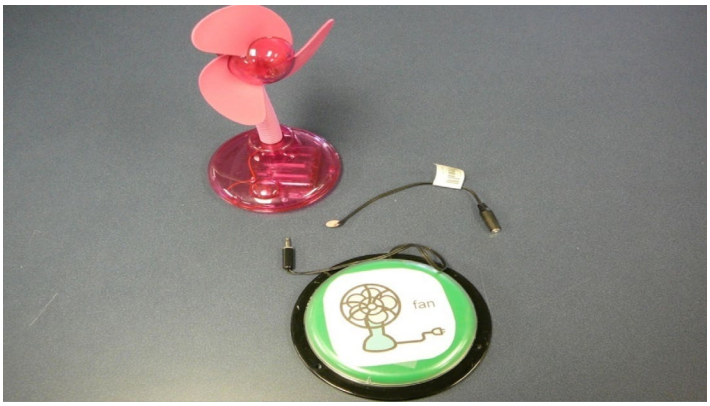


Image 2: Touch switch, battery interrupter, and battery-operated fan.

**SWITCH LATCH AND TIMERS (SLAT)**

A switch latch and timer (SLAT) is recommended as an additional key tool to support development of switch skills with battery adapted toys (See image 3). A SLAT is a device designed to adjust the activation time of a toy, allowing it to function for a set duration in seconds or minutes using a timer mode or operate continuously in latch mode. When set to the timer option, either seconds or minutes can be selected to determine how long the toy or activity operates before stopping. The ability to add timed seconds/minute for the toy to play supports development of switch skills in that it does not require the individual to hold or depress the switch for it to play. Momentary/direct activation continues only if the switch is activated. This step should not last long before moving on. While direct causation is a first emergent step in switch skills, most need to be moved quickly on to the next step, which is to activate the switch, an activity plays, then stops to prompt re-activation. Higher level switch skill activation requires activating a switch once then activating again for an additional activation as opposed to maintaining contact. Using


Image 3: Dual switch latch and timer (SLAT) from Ablenet.

latch setting on a SLAT allows for more advanced or varied toy/activities. When the SLAT is turned to 'latch' it will turn on the toy or activity when activated and remain on until it is activated again. This feature can be used with activities such as turning on lights, blenders, etc. It can also be used as an advanced switch skill for individuals who understand switch functions and simply need a way to access the activity.

**SWITCH ACCESS WITH ENVIRONMENTAL CONTROL UNITS (ECU)**

For items with electrical plugs, an environmental control unit (ECU) can be used (See image 4) to make the item switch accessible. Items plugged into an ECU need to have an on/off button so when the switch is depressed it will turn on. Examples of items that this would not work with are those that may require two different buttons to be depressed at the same time. Items that have more than one button to be depressed for activation could be accessed via an ECU if a peer or partner activated the button while the individual activated the switch. Also, if the item had a button that needed activation, it is possible to modify the item by affixing foam or a small object to the button with duct tape to keep the button depressed.

Some examples and ways to switch adapt activities with ECUs can include blenders, kitchen appliances with on/off capabilities, radios, fans, hair dryers to blow paint around or objects (insert image), blow up yard decor, floor and table lamps, electric pencil sharpener, electric paper shredder, and an electric stapler. Ablenet has a one-hour webinar, Ablenet Webinar on the Power of the Powerlink Control Unit that provides examples of ways to use an ECU in the classroom and home environments.


Image 4: Powerlink ECU from Ablenet.

**SINGLE MESSAGE VOICE OUTPUT COMMUNICATION AIDS**

Single message voice output communication aids (VOCAs) can look like a switch, however, if you are able to record a message then they are considered communication devices.

The BIGmack from Ablenet is widely used and recognized as a single message VOCA. It comes with two switch jacks, one that can provide access to a switch adapted toy and one jack that can connect to a specialty switch to it that would activate the recorded message in the same way pressing the large 5" surface activates the message. The device comes with a variety of colored tops that can be interchangeably used. In addition, there are other single message VOCAs that come in various sizes and shapes.

**SWITCH ACCESS TO CHROMEBOOKS AND IPADS**

Many computers, laptops, and tablet devices have built in switch accessibility. Chromebooks and iPads are two of the more prevalent devices used in schools, both of which have built in switch accessibility.

To access a Chromebook with a switch, a switch interface is needed. A switch interface allows external switches to send keyboard commands to the computer device. There is built-in switch accessibility for the Chromebook as well as the ability to access websites with built-in switch accessibility. Most switch accessible activities or websites will list what keyboard commands they use. If the keyboard commands are not listed, you can also try out keyboard commands to see if they are switch accessible. Commonly used keyboard commands for switch use include space bar, return, tab and arrow keys.

Switch interfaces are also needed to access an iPad with a switch. iOS devices offer built-in switch accessibility features, along with access to apps that also include integrated switch accessibility. There are both wired and wireless switch interfaces for iPads and other iOS devices. There are pros and cons to having either wired or wireless switch interfaces. Wired switch interfaces provide direct access via the charging port. They reduce barriers that often come with Bluetooth pairing since they are physically connected to the device. Since wired switch interfaces are physically connected, the connecting cords for the switch interface and the switch are more directly in the way or could potentially cause a barrier from being so close to the device. For example, individuals in wheelchairs may need the iOS device mounted to a table or to their wheelchair and the connecting cords could be easily and/or accidentally removed from the device by nearby movements. Some examples of wired switch interfaces for the iPad include Tapio USB/iOS switch interface.

Wireless switch interfaces allow for the switch interface and the switch to be positioned away from the iPad therefore reducing the possibility for the cord to be accidentally removed. The switch can still be physically connected to the switch interface while the switch interface is connected via Bluetooth to the iPad. Bluetooth switch interfaces can also pose a barrier as there can



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be difficulties with Bluetooth pairing and connection. Some examples of Bluetooth switch interfaces are the Ablenet Blue2 FT and the Pretorian APPlicator.

## DEVELOPING SWITCH SKILLS

There are a variety of options for switch activities both free and paid, web-based, apps, and software. There are fewer options for programs that provide switch skill development that supports individuals through emergent switch skills such as cause & effect to errorless choice making. For individuals requiring alternative switch access, building motor patterns for switch skills through games and activities establishes the foundational abilities needed to later use switches for accessing advanced academic content and communication tools.

SEN Switcher is a free download for developing switch skills, and is available for download on Windows operating systems. Activities range from single switch experiential shapes and patterns, to timing, to multiple single switch activations, targeted, and finally errorless choice making. On the website there is a short video that explains SEN Switcher. In addition, SEN teacher provides access to SEN Switcher online without needing to download. SEN teacher states that the original flash version is converted to a modern format on the fly.

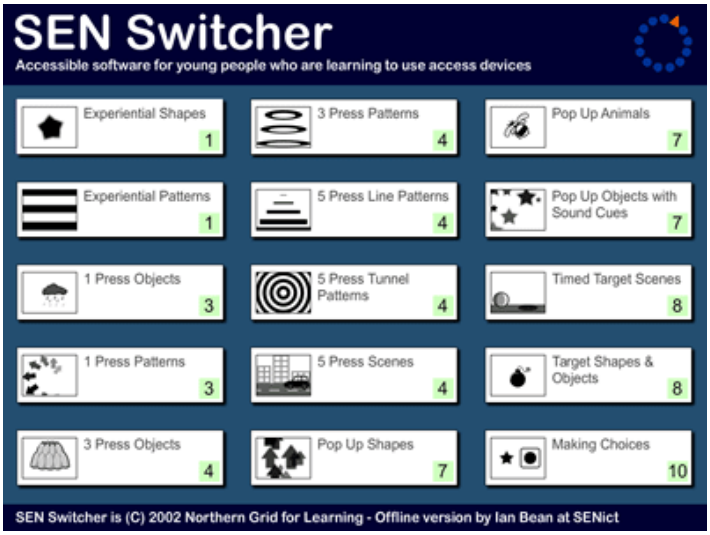


Image 5: Screenshot of SEN Switcher.

Also available from SENict website from Ian Bean, are additional free activities that are categorized by access method (switch, touch, pointing devices, eye gaze). The activities are all switch accessible and there is a specific category for two switch skills to support choosing and scanning for individuals working beyond cause & effect switch use. All of these activities are only compatible as downloads for PC computer running Windows operating systems. On the website there are companion resource documents including switch advice, switch levels and switch roadmap by Inclusive TLC.

HelpKidzLearn provides a variety of accessible learning activities. Specifically, the games & activities provide accessible game-based learning that supports access methods including mouse, switch, eye gaze and touch. The Learning progression and outcomes guidebook provides an overview of all the activities and what skills they target for developing switch skills. HelpKidzLearn uses the switch progression roadmap that outlines stages of switch skill development from cause & effect to advanced switch skills such as choice making.


Image 6 : Graph from Learning Progression and Outcomes guidebook depicting milestones that include the various types of activities available and learning objectives for switch skill development.

In addition, HelpKidzLearn has a 'My Switch Journey' free guidebook for tracking and supporting individual students' switch skill development. This resource is intended for individual student customization for progress and data tracking, observations and comments. It also has a breakdown of the various switch skill progression and outlines what activities support each skill (See image 7, next page).

Steps Before Step Scanning for Mind Express 5 is a set of ready-made activities and allows the creation of individual student activities. It is available to purchase for use with Mind Express 5. All activities are based on the 'Stepping Stones to Switch Access' by Linda J. Burkhart. Some of the activities were previously available for IntelliTools Classroom Suite. There is no timing in any of the activities purposely to support an individual's ability to more easily process the motor and cognitive information to form new neurological connections. It is available only on Windows operating systems.

Step Scanning: Eight Lessons to Get There app by Judy Lynn is available to purchase on the app store. It is designed to support users from single switch cause & effect to advanced switch skill progression based on Two Switches to Sucess by Linda J. Burkhart. There are various activities grouped into the following lessons:

Lesson 1 - Single Switch Cause & Effect (A pre-requisite)
Lesson 2 - Cause & Effect with Two Switches
Lesson 3 - Interaction between Two Switches
Lesson 4 - Step & Select Introduced
Lesson 5 - Errorless Step Scanning

**A quick guide to skill development.**

Date each step of My Switch Journey and travel to the next step. Note that each section is broken down into small, manageable steps. It is important to acknowledge that some children may not complete every step, but each achievement they make is a celebration of their learning and skill development. As they continue to work on the steps, they have learnt in a way that is right for them, they are making positive progress.

** When children are developing switch skills, each child's journey is unique finding the most suitable route to promote positive outcomes. Tailoring support to individual needs builds positive outcomes. For instance, in developing cause-and-effect skills, some may start with press-and-hold, while others prefer press-and-release method.*

| **Pre-cause & effect skills** are fundamental for using switches. They involve exploring senses, understanding how actions lead to results, and getting familiar with switches. | | **Cause & effect learning** means that our actions can make things happen around us. | | **Sequential learning** means understanding that activities follow a specific order to achieve a goal. | | **Attention & timing** help learners focus, control impulses, and improve concentration. These activities are helpful for learners who understand cause and effect and are learning to use their switch at the right moment. | | **Targeting & timing** involves aiming, timing actions correctly, and staying focused. | | **Introduce choice** helps learners develop skills like decision-making, turn-taking, problem-solving, and negotiation, crucial for social interactions. | | **Choice making** helps learners develop skills in exploration, decision-making, problem-solving, and object association. It allows for making choices freely and introduces concepts of right and wrong, building independence and communication skills. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ⌄ | Date | ⌄ | Date | ⌄ | Date | ⌄ | Date | ⌄ | Date | ⌄ | Date | ⌄ | Date |
| Develop an understanding of cause & effect | | Press & Hold | | Press & Watch | | Wait then Press | | Static Targets | | Two Objects | | Free Choice | |
| | | Press & Let Go | | Make More Happen | | Wait for Change | | Variable Targets | | Related Objects | | Find the Object | |
| | | Press It Again | | On & Off | | Locate Change | | Variable Timing | | Interacting Objects | | Complete the Set | |
| | | | | | | Experimental Play | | Moving Targets | | Build Up | | Create a Scene | |
| | | | | | | Ready Steady Go | | Experimental Play | | Move & Get | | Exploration | |
| Continue to page 15 for Cause & effect | | Continue to page 38 for Sequential | | Continue to page 64 for Attention & Timing | | Continue to page 97 for Targeting & Timing | | Continue to page 129 for Introduce Choice | | Continue to page 163 for Choice Making | | Continue to explore HelpKidzLearn to build on all the skills learnt. | |

Image 7: Screenshot of My Switch Journey, a quick guide to skill development.

Lesson 6 - Go Get It - Errorless Step Scanning
Lesson 7 - Purposeful Step Scanning
Lesson 8 - Step Scanning Matching Activity

There are a variety of websites that provide switch access through one to two keyboard commands to support emergent switch users. For example, YouTube uses a spacebar to play and pause. Monarch Reader provides built-in switch access for reading books and provides information on their website of various options. Readers can use one, two or three switches to select, read, or rate books. Example keyboard commands include spacebar, right arrow key, mouse click, tab and enter.

Tar Heel Gameplay is a collection of free accessible games that can be accessed by switch, touch, or mouse. It provides access for up to three switches. Users can 'find a gameplay' or 'create a gameplay'. A free registration code is needed to create gameplays, and information on how to obtain the registration code is provided on the website. While Tar Heel Gameplay does not provide activities to support all skills with switch skill progression, it does provide both single switch and two switch access both with premade gameplays as well as the ability to create your own gameplay. When creating a gameplay, the prompt desired can be customized as well as how often the prompt is displayed and at what minute markers (See image 8 and image 9, next page).

## IMPLEMENTATION TIPS AND CONSIDERATIONS

When supporting switch use and development of switch skills the focus is always on the goal not the switch. Activation of a switch is not the activity but rather what the switch activates. Any goals written to support switch use should refer to the switch as the tool not the activity.

There are various levels or degrees of prompting to consider when supporting individuals with developing switch skills. Scaffolding layers of prompting should always occur from least restrictive to more restrictive based on the needs of the individual. Nankee (2016) explains that the same principles of prompt hierarchy for teaching individuals how to use communication devices can be applied with some adaptations for teaching switch access. After each prompt it is important to pause and wait for the individual to respond. Each individuals' pause time or wait time is different and adults often do not wait long enough before requesting or repeating the prompt.

Below are prompt hierarchy examples adapted from Assistive Technology Internet Module, Switch Access – WATI - Part 1 through OCALI authored by Cindy Nankee (2016).

- Environment - Present an inviting and motivational activity to the individual with no additional prompting and observe their interest and exploration of the activity.
- Gesture - Use a gesture to indicate or attract attention to the activity.



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Image 8: Example of 2 switch premade activity in Tar Heel Gameplay.

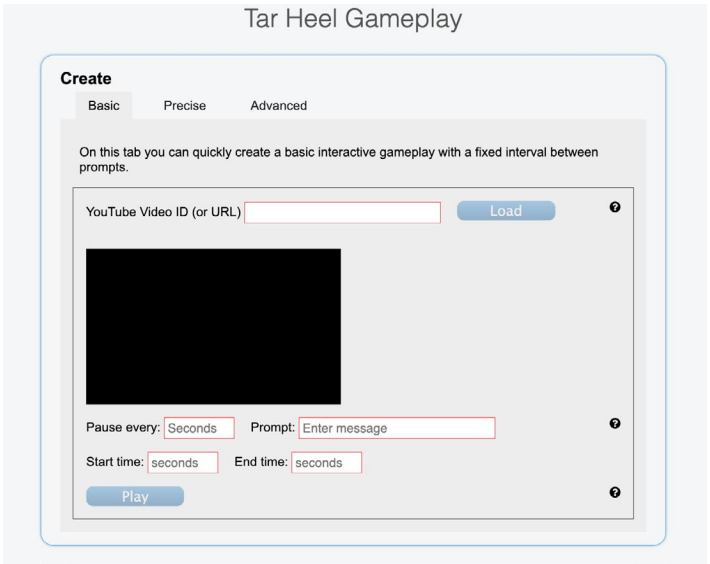


Image 9: Options available when creating a Tar Heel Gameplay.

- Examples: Draw the individual's attention to the switch by indicating where the switch is located with your hand. Demonstrate the switch-activation motion using the same body part that the individual uses to activate the switch.

- Verbal prompt - Request the individual to participate in the activity, "Turn the page or play the game." Avoid saying, "hit the switch" as the switch itself is simply the access tool to the activity.
  - Example: Say something like "Tell me…" or "Show me…" or "Play the…"
- Auditory prompt – Draw attention to the switch by tapping. This can be beneficial for individuals with visual impairments and for those using head access where the switch is not in the line of sight.
  - Example: Lightly tap the switch or the near the switch to make sound to draw attention to it without activating it.
- Demonstration - Pair verbal prompt with demonstration, "I'm going to turn the music on," and then perform the activity.
  - Examples: Turn-taking: "My turn" and adult takes a turn. Could add a verbal prompt with then saying: "Your turn"
- Motor guidance – Physical support can either support active learning or passive learning. Assisting an individual in completing a task with hand-over-hand does not typically provide learning value. Often hand-over-hand elicits passive learning. It may be more appropriate and beneficial to support at the elbow or wrist, or at least hand-under-hand. The article When You Need Your Hands to Help ... Facilitation Guidelines for Staff Working With Students With Physical Challenges by Dale Gardner-Fox, M.S., RPT, is an excellent resource to support this level of prompting.

## SWITCH TYPES AND PLACEMENT CONSIDERATIONS

There are multiple categories of switch types similar to multiple categories of assistive technology. Also, there can also be various ways to label or categorize switches although they all are essentially describing similar features. For more information on switch types, go to Assistive Technology Internet Module, Switch Access – WATI - Part 11 through OCALI authored by Cindy Nankee (2016).

Another great resource is the Ablenet Switch Selection Guide, which includes a variety of mechanical, electronic, wired and wireless switches - Ablenet Swith Selection Guide.

Often teams will try various types of switches before trialing various switch placements. When beginning to support and explore switch skills with an individual, starting with a jellybean switch, along with experimenting with various switch placements, can be effective before trying different switch types.

Before determining switch placements and types, it is recommended to ensure that the individual is positioned an optimal as possible. "A student's ability to successfully coordinate the motor and visual skills required for functional switch use is in large part dependent on the manner in which the child is positioned" Goosens and Crain (1992). If an individual is not positioned correctly, then determining access method will be a moot point. The ability to use your upper extremities and hands functionally, the ability to control your trunk and head, the ability to sustain engagement or even have the motivation to engage is all dependent on positioning.

For switch placement considerations, teams will want to look for consistent, reliable physical movement. Some questions to guide switch placement:

- Can the individual repeat the movement with minimal effort?
- Can the individual repeat the movement upon request?
- Is the activity motivating enough that the individual wants to turn it on with the switch?

**CUSTOMIZE YOUR SWITCH**

There are many ways to customize a switch. In addition to trialing various switch placements, considering the angle and location of the switch when using direct access with a hand can also support successful switch activation. Positioning the touch switch at a 45-degree angle can facilitate activation by eliminating the need to press directly on a flat surface. Instead, the individual can activate the switch by moving their hand toward it or by performing a side-swipe motion from left to right. This can be done by using a mount or by cutting a pool noodle or a piece of foam. There are low tech mounts and surfaces for purchase such as the Maxess Switch Mounts to vary positions at a 45-degree angle (See image 10). Also, touch switches can be positioned by placing them within a piece of foam so that the surface is nearly flat. The individual then can then rest their arms or hands on the foam and move to the recessed area to activate the switch. There is a photo example of a child using recessed switches on Ablenet's Switch Access Beyond Cause and Effect: Stepping Stones for Effective Learning – Part 1 by Linda Burkhart and Fio Quinn (2020). Switches can also be positioned at various angles through the use of rigid switch arm mounts or through flexible switch arm mounts like those described in the Closing the Gap front page report, Flexible Mounts Created by Modular Hose for Assistive Technology. This low-cost option allows teams to easily adjust the mount location on the fly.

Often some will continue to pursue a 'perfect' switch site before beginning to engage in switch related activities. Waiting until then could result in significant delays or it potentially not happening at all, as there is always room for improvement. The goal should be to find some good possible switch placements and then provide opportunities for the individual to learn how to use them. As the individual engages with the switch and a functional purposeful activity, that will then inform and refine the identification of switch sites. Positioning, motor tone, fatigue, and the activity all influence the potential success of switch sites. The best thing to do is jump in, try it, use it and continue to refine while the individual is engaged in switch activities. It is best to ensure that the cognitive load is reduced while they are learning, such as engaging with switch games and not pairing the new motor pattern required for switch use with complex communication and language tasks.

Image 10: Flat switches can be angled by cutting a pool noodle to create a 45-degree angle.

Parallel Interventions should take place concurrently that include both building switch skills through play and games as well as utilizing low tech and/or mid tech tools for supporting communication needs. Examples of building switch skills through play and games include cause and effect online activities through a computer or iPad and switch adapted toys. Examples of supporting communication through low tech and mid tech tools include the use of providing aided language stimulation, partner assisted scanning for low tech communication books or PODD books, use of eye gaze frame and low-tech picture symbols and simple voice output communication aids (VOCAs).

## STARTING WITH PLAY AND GAMES

There are many reasons why individuals who need alternative access should start with building switch skills on the computer. The computer (or iPad) will always provide feedback when a individual activates a switch, and that feedback will be consistent. When engaging in switch activities that are reliant upon adults or peers, the feedback can vary and be inconsistent. One adult may provide a more enthusiastic response than another, provide varying amounts of verbal responses or even at times be unable to respond due to contextual factors. Computer-based games and activities also can provide high contrast and visual interest. When an individual is positioned properly in front of the computer, the screen is directly taking up their visual field, and therefore providing high visual interest feedback. It also supports individuals with visual impairments including cortical visual impairment (CVI) as many of the switch-adapted games and activities include accessibility features that support high contrast. In addition to the visual feedback, computer-based games and activities can also provide intense auditory feedback. This can be done through the built-in speakers of the computer, Chromebook, or iPad or headphones can be used to reduce external noise and increase auditory support. Starting with practicing switch skills using computer-based play and games are reducing the cognitive load for the individual in order build the foundation for accessing higher level academics and communication.

The goal should be to try to move from one switch to two switch scanning when working beyond the level of cause and effect. While a secondary switch site may not be possible for all, those supporting the individual should exhaust all avenues to identify a secondary switch site and determine that is not possible as a team. Two switch step scanning allows more control and active participation for the individual by being able to control



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two switches and their activation at their own pace. When using only one switch, the individual is waiting to time the activation of the switch when scanning. Also, each switch has its own purpose. One switch becomes the 'mover' or the scanner and the other switch is the 'select'.

There are multiple resources regarding developing switch skills and building two switch skills. Linda Burkhart's Stepping Stones to Switch Success article outlines how to teach switch access for individuals who have significant communication, physical and sensory disabilities and are unable to use their hands for direct access. More information on this can be found on Linda Burkhart's handout section on her website, Two Switches for Success: Access for Children with Severe Physical and/or Multiple Challenges (Burkhart 2004)

**STEPPING STONES TO SWITCH SUCCESS**

Step 1: Single Switch - Cause and Effect

Step 2: Single Switch - Multiple Locations and Multiple Functions

Step 3: Two Switches - Two Functions

Step 4: Learning to Two Switch Step Scan

Step 5: Two Switch Step Scan Errorless Learning

Step 6: Two Switch Step Scan for Clear Choices

Step 7: Practice for Increasing Accuracy with Two Switch Step Scanning

Step 8: Switch Automaticity - Reducing Time for Success

Katie Stuhlsatz and Kathy Lalk (2012), converted Linda Burkhart's Stepping Stones to Switch Access (Two Switch Step Scanning) into a chart that provides implementation ideas and tips with example activities for each stepping stone (See Image 11).

Pairing the activity examples on the chart with the software examples previously described provides a solid foundation for developing switch skills for individuals who need alternative access. By supporting these skills through computer-based games, switch adapted play activities, and communication tools, while reducing cognitive load and building on each step, individuals will be better equipped to handle increasingly complex academic, communication, and language demands in the future.

**Stepping Stones To Switch Access (Two Switch Step Scanning)**

Linda Burkhart http://www.Lburkhart.com

Converted to chart format by Katie Stuhlsatz and Kathy Lalk, St. Louis Special School District Assistive Technology Specialists

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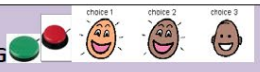
**STEP 5: TWO SWITCH STEP SCAN: ERRORLESS LEARNING**




| Definition of Step 5 (motor skill) | Implementation Ideas and Tips |
|---|---|
| Student is beginning to understand, or already understands, how two switch step scanning works. The student now continues to work on automaticity for switch activation as well as develop automaticity for the motor coordination of the process of step scanning. Student is practicing with a variety of opportunities where any choice works. Note: If the child appears very intentional in step 5, move on to step 6. | *Errorless equals "Failure free with feedback" (Erikson)<br>*Errorless learning may allow the student to make mistakes or unwanted choices with clear strategic feedback that allow for student to problem solve from an intrinsic drive.<br>*MODEL- self talk (see step 4). "no, no, yes".<br>*Do not ask the child to target your preference at this step. Allow child to select what they want and provide feedback<br><br>NOTE: In the field of special education, sometimes the term 'errorless learning' is used to describe a strategy that doesn't allow the child to make mistakes. In this application, errorless means the opposite: A learning/play environment, where any choice works, but each choice provides feedback. This allows the child to engage in problem solving skills without requiring 'correct' performance. |

| Activity Examples | Switch 1 | Switch 2 |
|---|---|---|
| Communication | Battery operated rotating plate activity | Voice output (with a related comment) |
| Communication | Step by Step to list choices (step by step providing partner assisted scan) | Voice output to say "That's it" |
| Writing: Failure free with feedback | step through choices for errorless story, rhyme or letter | Select choice (picture, word, etc) to insert into story, rhyme or letter |
| Communication: Sing song | Step through verses of a song | Selects verse to be sung in any order |
| Communication: Simon Says, Follow the Leader, Potato Head, Draw a Face, Etc. | Use communication device to step through choices to direct a person or play a game | Makes the selection to direct the action: etc. with options that all make sense |
| Writing: "Scribble" with a talking word processor | Steps through limited set or full alphabet | Selects letters |
| Literacy: listening to or telling a story, silly saying or tongue twister | Step through verses or computer voices | Select the verse or select read all |
| Music: play a song using iTunes | Step through song list (keyboard key is right arrow) | Select song to play (key equivalent is enter) |

Image 11: Screenshot of Step 5: Two Switch Step Scan: Errorless Learning.

## ADDITIONAL RESOURCES

- Ablenet YouTube Video Series (each video below is about 1 hour – 1.5 hours)
  - Switch Access Beyond Cause and Effect: Stepping Stones for Effective Learning – Part 1
  - Switch Access Beyond Cause and Effect: Stepping Stones for Effective Learning – Part 2
  - Switch Access Beyond Cause and Effect: Stepping Stones for Effective Learning – Part 3

- OCALI Assistive Technology Internet Modules (ATIM)
  - Students With Complex Needs - WATI - Part I
  - Students With Complex Needs - WATI - Part II

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Perspectives of the ASHA Special Interest Groups SIG 12, Vol. 3(Part 1), 2018, Copyright © 2018 American Speech-Language-Hearing Association

Piaget, J. (1951). *Play, dreams, and imitation in childhood*. W. W. Norton & Company. ■



Switch Access Beyond Cause and Effect: Stepping Stones for Effective Learning - Part 1
https://www.youtube.com/watch?v=LmpjiPA_BZg


Switch Access Beyond Cause and Effect: Stepping Stones for Effective Learning - Part 2
https://www.youtube.com/watch?v=c0lwOpP3EqE


Switch Access Beyond Cause and Effect: Stepping Stones for Effective Learning - Part 3
https://www.youtube.com/watch?v=xFuOyvgIXS4




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# One Size Fits All?
## Influencing SLP's Perspectives of AAC

**Summary:**
Our article will explain ways to support speech-language pathologists (SLPs) and parents in school districts with diverse and litigious cases utilizing systems in place at large school districts. The article will describe the assessment, training, and intervention support framework provided to therapists. An anonymously completed survey by SLPs in different settings and school districts within the United States will be compared to the outlined support system in this article.

### INTRODUCTION

"AAC doesn't work." "The communication board is too big." "Modeling is too hard." When beginning to work towards creating an AAC rich environment with a school based multidisciplinary team, there can be many roadblocks in the way. At the end of the day, one of the biggest questions Speech-Language Pathologists (SLPs) want answers to is how to do an assessment and get a device. In the words of Bugaj (2018), "Thinking that suggestions for technology need to come from someone with the words 'assistive technology' in his or her job title is like thinking that only jockeys can ride horses and only race-car drivers can operate automobiles" (p. 147).

In our AAC consultant role our team is meant to guide discussions, support data collections, help encourage collaboration between the multidisciplinary team, and assist with report writing. At the end of the day, the decisions for each student is ultimately up to their team, rather than the AAC consultants recommendation. Our job is to empower SLPs when making this decision, and help them understand how to advocate for students with complex communication needs during IEPs.

We provided a survey for a small number of SLPs we work with to indicate their level of expertise with AAC. In this survey we had 38 responses, but 73.7% of the SLPs that completed the survey noted their expertise level as 'moderate.' Contrary to that,

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**TIFFANY PIERANGELO,** MA, CCC-SLP, is a Southern California Speech-Language Pathologist who is passionate about AAC and educating clinicians and parents on how to best support students with complex needs. She currently works with children and young adults in a school setting as an AAC Consultant and SLP, and is an adjunct professor at CSU Northridge. She received her B.A. in communication sciences and disorders and M.A. in speech-language pathology from Wayne State University and has presented a research findings poster at ASHA, Talking AAC, ASHA Schools Connect, and Closing the Gap. She loves hiking with her three dogs and playing with her daughter.

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the second highest rating was 'novice/beginner' at 18.4%. In this small sample, we can see that the collaborative nature of AAC support can empower SLPs when working with people who use AACs.

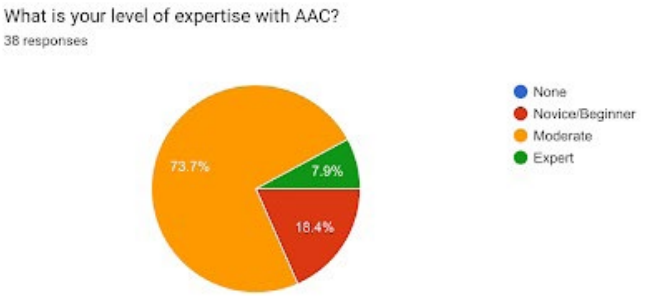


Image 1 - School district survey pie chart addressing level of expertise with AAC.

## SUPPORTING SLPS

Our team implements a train the trainer approach to AAC education and support for each school site's multidisciplinary team. We are meant to give these SLPs all the resources we can to help them feel like experts themselves! This all starts at the assessment. When we are contacted by the SLPs we outline the assessment process. The real work begins when we meet for the assessment and device trials. At times, SLPs are excited and happy to see us, but sometimes they are nervous and overwhelmed about the unique dynamic assessment style that is required with an AAC assessment. Before we even begin the appointment, we talk about the students. Emphasizing the needs and strengths for the students during the device trials is incredibly important. Although we may have the most knowledge about AAC during the assessment, these SLPs are the experts on their students. Each student has unique needs, challenges, interests, and strengths. It's our job to help highlight and support them to the best of our ability.

***AAC Consultant:*** An SLP who supports the school's SLP with their AAC needs -

- Does not do the assessment independently
- Reviews report
- Orders devices
- Helps with maintenance.
- Leads training until SLP is confident
- Houses a variety of Lite, No, Mid and High tech devices.

***School Site Provider/SLP:*** The SLP assigned to the school to carry out assessments and treatment -

- Administers most of the AAC assessment
- Write the report
- Presents the information at the IEP
- Does the therapy
- Will participate in training until confident to lead
- Facilitates organizing the training with staff/parent

## BEGINNING THE COMPREHENSIVE ASSESSMENT

When beginning a school based AAC assessment, the first step is getting an assessment plan. When AAC consultants are contacted we remind SLPs that a comprehensive language and speech assessment must be completed for these students, including testing. We at times provide recommendations and support for using assessments with students with complex communication needs. There are many tests that can be used with students with complex communication needs. Standardized tests that we recommend are the Receptive One Word Picture Vocabulary Test - Fourth Edition (Martin & Brownell, 2011b), Expressive One Word Picture Vocabulary Test - Fourth Edition (Martin & Brownell, 2011a), Peabody Picture Vocabulary Test - Fifth Edition (Dunn, 2018), Rosetti Infant Toddler Language Scale (Rosetti, 1990), Receptive Expressive Emergent Language Test - Fourth Edition (Brown, Bzoch, & League, 2020), and Preschool Language Scales - 5th Edition (Zimmerman, Steiner, & Evatt Pond, 2011). Criterion based assessments are often times a better measurement of students with complex communication needs skills. We recommend using The Communication Matrix (Rowland & Fried-Oken, 2010), Dynamic AAC Goals Grid - Edition 3 (DAGG-3) (Clarke & Tobii Dynavox, 2022), Functional Communication Profile - Revised (Kleiman, 2003), Early Functional Communication Profile (Jensen, 2012), Nonverbal Communication Skills section of the Clinical Evaluation of Language Fundamentals - Fifth Edition (CELF-5) Pragmatics Profile checklist (Wiig, Semel, & Secord, 2013), and the Test of Aided Language Communication Symbol Performance (TASP) (Bruno, 2010). These assessments can provide a holistic assessment of how and why a student with complex communication needs expresses their wants, needs, ideas, and thoughts.

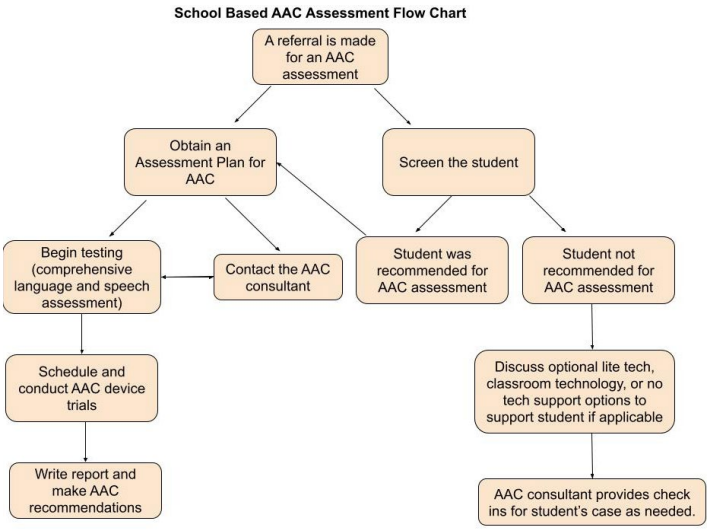


Image 2 - Flow chart for AAC assessment process.



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When working with students with complex communication needs we tend to emphasize using the Communication Matrix (Rowland & Fried-Oken, 2010) and the DAGG-3 (Clarke & Tobii Dynavox, 2022). The Communication Matrix (Rowland & Fried-Oken, 2010) measures pre-intentional behavior, intentional behavior, unconventional communication, conventional communication, concrete symbols, abstract symbols, and language regarding the following reasons to communicate: refuse, obtain, social, and relaying/seeking information. These are marked as not used, emerging, or mastered throughout the assessment. This assessment is very powerful when students with complex communication needs use alternative methods of communicating (i.e., gestures, vocalizations, affect, directed eye gaze), that assessors may not note as a means to communicate. When assisting SLPs that are unfamiliar with the assessment, we can help them unpack effective modalities for the student to use to communicate, and build upon their areas of needs efficiently.


Image 3 - Communication Matrix Chart from a fictional client.

The DAGG-3 (Clarke & Tobii Dynavox, 2022) is helpful when guiding the intervention plan with a student with complex communication needs. It starts with identifying the communication ability level of the student with complex communication needs. These include emergent, emergent transitional, context dependent, transitional independent, and independent communicators. Each of these are examined within the four different competencies: linguistic, operational, social, and strategic. The linguistic competency is noted as "expressing and understanding language. Learning and using vocabulary. Reading, writing, and spelling;" the operational competency is noted as "ability to maintain, navigate, and operate the AAC system using the chosen access method;" the social competency is noted as "communicating effectively in socially appropriate ways;" and the strategic competency is noted as "utilizing strategies to overcome or minimize the functional limitation of AAC" (Clarke & Tobii Dynavox, 2022, p.5). These competencies can help identify strengths and areas of growth for students who use AACs. We recommend using this to help with goal writing as well.


DAGG-3

Dynamic AAC Goals Grid Third Edition

Developed by Tobii Dynavox in conjunction with Vicki Clarke, MS, CCC-SLP (2023) based on the original DAGG created by Clarke and Schneider, 2009. Informed by the works of Patricia Dowden, PhD (1999), and Janice Light, PhD (1989, 2014).



Name: Language Spoken at Home:
Address: Gender: ID#
City: Current Grade:
State: Zip: School/Agency:
Home Phone: Examiner:

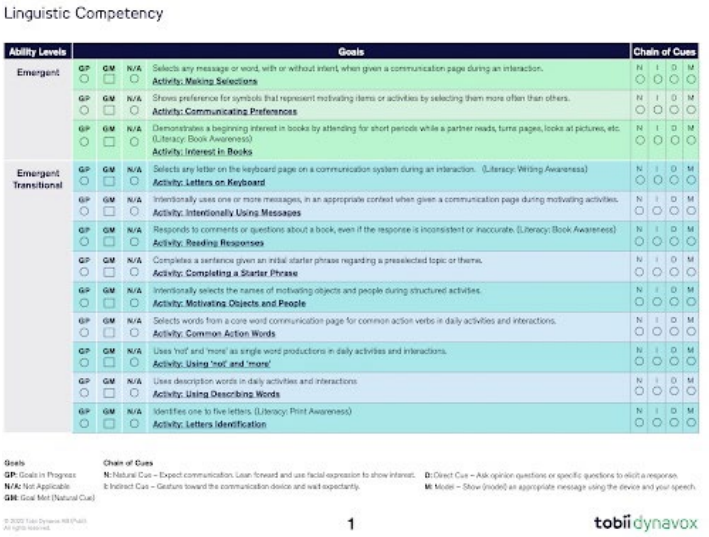
Progress Summary

Review Date: Review Date:

| Skills | Ability Level | | | | |
|---|---|---|---|---|---|
| | Emergent | Emergent Transitional | Context Dependent | Transitional Independent | Independent |
| Linguistic | % | % | % | % | % |
| Operational | % | % | % | % | % |
| Social | % | % | % | % | % |
| Strategic | % | % | % | % | % |

tobii dynavox

Image 4 - DAGG 3 assessment cover page from Tobii Dynavox.


Linguistic Competency

| Ability Levels | Goals | Chain of Cues |
|---|---|---|
| Emergent | GP GM N/A Selects any message or word, with or without intent, when given a communication page during an interaction. Activity: Making Selections | N I D M |
| | GP GM N/A Shows preference for symbols that represent motivating items or activities by selecting them more often than others. Activity: Communicating Preferences | N I D M |
| | GP GM N/A Demonstrates a beginning interest in books by attending for short periods while a partner reads, turns pages, looks at pictures, etc. (Literacy: Book Awareness) Activity: Interest in Books | N I D M |
| Emergent Transitional | GP GM N/A Selects any letter on the keyboard page on a communication system during an interaction. (Literacy: Writing Awareness) Activity: Letters on Keyboard | N I D M |
| | GP GM N/A Intentionally uses one or more messages, in an appropriate context when given a communication page during motivating activities. Activity: Intentionally Using Messages | N I D M |
| | GP GM N/A Responds to comments or questions about a book, even if the response is inconsistent or inaccurate. (Literacy: Book Awareness) Activity: Reading Responses | N I D M |
| | GP GM N/A Completes a sentence given an initial starter phrase regarding a preselected topic or theme. Activity: Completing a Starter Phrase | N I D M |
| | GP GM N/A Intentionally selects the names of motivating objects and people during structured activities. Activity: Motivating Objects and People | N I D M |
| | GP GM N/A Selects words from a core word communication page for common action verbs in daily activities and interactions. Activity: Common Action Words | N I D M |
| | GP GM N/A Uses 'not' and 'more' as single word productions in daily activities and interactions. Activity: Using 'not' and 'more' | N I D M |
| | GP GM N/A Uses description words in daily activities and interactions. Activity: Using Describing Words | N I D M |
| | GP GM N/A Identifies one to five letters. (Literacy: Print Awareness) Activity: Letters Identification | N I D M |

Goals
GP: Goals in Progress
N/A: Not Applicable
GM: Goal Met (Natural Cue)

Chain of Cues
N: Natural Cue – Expect communication. Lean forward and use facial expression to show interest.
I: Indirect Cue – Gestures toward the communication device and wait expectantly.
D: Direct Cue – Ask opinion questions or specific questions to elicit a response.
M: Model – Show (model) an appropriate message using the device and your speech.

1

tobii dynavox

Image 5 - DAGG 3 assessment checklist page from Tobii Dynavox.

## BEGINNING THE AAC ASSESSMENT

After the comprehensive language test is done, we begin to address the AAC device trials. We start by providing an AAC assessment checklist which includes each step of the assessment that SLPs need to complete. The list includes 31 steps that outline each part of the assessment, from obtaining a correctly completed signed assessment plan to contacting the AAC consultant after the IEP is signed so they can order the recommended equipment. It's meant as a tool to help the SLPs work through the assessment step by step, without being overwhelmed by not knowing where to start or progress. It also helps SLPs to not miss components of the assessment.

There are parts of the dynamic assessment process that help us make team based decisions on how to help people with com-

plex communication needs. One protocol that is included is the intentional choice making task, which emphasizes communicating by using a range of modalities (i.e., eye gaze, reaching, facial expressions, vocalizations, and pointing). It provides options for motivating materials (i.e., toys like balloons, food, paper, instruments, keys, perfume, etc.) to inspire SLPs to find any item the potential student with complex communication needs may like. When discussing the intentional choice making protocol with SLPs we discuss motivation, discrimination between objects, purposeful selection skills, emerging symbolic communication skills, and what modalities the student with complex communication needs uses which we recommend that the SLP includes in their report.

The Test of Aided Language Communication Symbol Performance (TASP) (Bruno, 2010) must be attempted for students, as it can help advise some systems that could benefit an student who uses AAC. This assessment examines the symbol size and number of icons on a page (i.e., grid size), grammatical encoding skills, categorization abilities, and syntactic performance. This can help with selecting appropriate devices to trial, and how to customize device selection. For example, if a student demonstrates strong motor planning skills during the TASP administration I would likely trial LAMP Words for Life, and TD Snap with the Motor Planning page sets. If they demonstrate strong categorization skills, I would want to include Proloquo2Go, TouchChat, and TD Snap with Core First page sets.

Additionally, we have an informal literacy assessment protocol to identify number, letter,and word recognition, as well as written description comprehension. Understanding a student's abilities to use and understand written words can help implement components of text to speech, or use of word prediction technology into the assessment. Using systems that integrate these literate components are important when students have mastered the cognitive skills to use them. Even the most robust device does not have every word that exists on it, so providing a person who uses AAC access to this technology can help them express their needs using THEIR words regardless on if it is already programmed in the device.

Although an attempt of administering the TASP is required in our AAC assessments, it is in no way a requirement to gain access to a high tech AAC system. Students frequently throw the assessment and shut down during the administration attempts. In these cases we document what happened during the assessment attempt, and discontinue the administration of the TASP. These student still can benefit from high tech AAC! One student that was assessed licked the TASP booklet before it was discontinued, and they now have access to LAMP Words for Life following their AAC assessment. We emphasize in every case that there is no prerequisite to AAC (especially when including more structured assessment procedures).

## AAC DEVICE TRIALS

We start device trials by discussing how to record data. Some SLPs color code consultant modeling and student responses, some type out how the trials progress, and some do not know where to start or what they are looking for. This is when all the components of the assessment come together. We discuss the findings they noted from the observations of multimodal communication skills, the TASP, parent/teacher interviews, intentional choice making tasks, and literacy protocols. We talk about the comprehensive findings about the student, and begin the trials from there using feature matching.

**Device Trials Data Collection Tool**
**Access Method:**

| | |
|---|---|
| Trial 1: | Icons per page: |
| Purpose: | Languages needed/used: |
| Appears engaged (smiling, laughing, interested) | |
| Increased vocalizations | |
| Level of support needed | |
| Combine two symbols | |
| Combine three or more symbols | |
| Explore the device | |
| Use device functions (delete, back button, message window) | |
| Navigate through two pages | |
| Navigate through three pages | |
| Demonstrate communicative intent | |
| Request motivating contexts or objects | |
| Label objects/people | |
| Demonstrate motor planning/memory skills for icon location | |
| Initiate use of device | |
| Initiate communication with others | |
| Use of social language (greetings, jokes) | |

Image 6 - AAC device trial data collection tool.



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Feature matching, which is noted as the systematic process in which an students who use AACs strengths and needs are matched to available AAC tools and strategies (Shane & Costello, 1994; Threlkeld, 2022). We integrate into our various trials: a lite tech support, a mid tech device, and two to three high tech device trials. The selection of devices ties in the previous findings of the students fine and gross motor skills, categorization abilities, gestalt processing, literacy skills, and more. After the trials we ask reflective questions to help guide their note taking and decisions. What did the SLP think about the device trials? Did the student appear more interested in a specific device? How did they express their interest? Did they appear to communicate intentionally?

Image 7 - Core boards from AAC assessment kit


Image 8 - Mid Tech (Go Talk 9) and high tech tablet with AAC applications for the assessment kit.

Image 9 - Mid tech devices (BIGmack) and switches for AAC assessments.

**AAC Device/Support Options**

This last question is always the one that looms over a discussion with a provider. Sometimes we get the responses of "Yes! The student selected stop and appeared happy after the consultant stopped." But other times we get responses like "I'm not sure, they just seemed to be hitting random buttons," or "They pressed 'go' twice but it didn't seem intentional." While presuming competence to all communicative attempts can be told repetitively to unfamiliar clinicians or multidisciplinary team members, these examples are when we get to apply these concepts directly to clinical practice. Explaining how and why to presume that each communication attempt is intentional is critical to empower person with complex communication needs. For example, there was a device trial where a student had selected 'up' when exploring the device, and the clinician attributed meaning by placing a manipulative 'up' on their head and provided modeling on the AAC device they were trialing. The student thought this was silly, and began selecting 'up' throughout the assessment, which built upon their communication skills. Without presuming competence, this word would not have been modeled, losing potential learning opportunities for people who use AACs.

- Some other conversations we navigate during device trials can include:
- Do you think a core board would be just as helpful?
- Why is this assessment so long?
- How can I get the teacher or parent on board with the device?
- I am overwhelmed and do not know how to treat someone using an AAC device.

During the trials we also think about a variety of motivating communication contexts,, these can include sensory toys like Monkey noodles, pop tubes, light up or wind up toys; manipulatives like puzzles, Mr. Potato Head, or toy animals/food; or a list of topics to talk about, like music, art, and hobbies. Sometimes it's hard to tell what people with complex communication needs are interested in. We've had a student who liked the sound of screams and horror movies over the sounds of puppies barking or lawn mowers. We've also had students who love to play with laminated strips of paper. Whatever manipulative they are interested in or conversational topic they want to talk about should be emphasized to provide the most motivation for them to

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communicate. This helps make the device trial data collection process proceed smoothly, and generates powerful evidence to support recommendations for students with complex communication needs.


Image 10 - AAC assessment motivators and manipulatives.

## AFTER THE ASSESSMENT:

During the device trials and assessment we are there to empower the SLP not make the recommendation. They are the case carriers and have to present at the IEP. We want to prepare them and empower them so they feel comfortable making and defending their recommendations. Studies have shown that dynamic assessment procedures, including standardized assessment, criterion assessment, case history, professional collaborations, and observations were useful in AAC assessments(Sanders et al., 2021; Lund et al., 2017; Binger et al., 2017). At the end of the day we are there to consult. Sanders, Page, and Lesher (2021) found that SLPs had lower levels of confidence incorporating cultural and linguistic diversity, assessing those with severe physical impairments, aspects of feature matching with AAC, and finding funding for AAC devices when evaluating students with complex communication needs. Empowering the SLP to feel confident within the area of AAC could result in greater commitment to the device and increased confidence with the support team.


YouTube Video - Example of collaborative discussion between AAC assessor and SLP.
https://youtu.be/ss_allCaGgo

**AAC Assessment Reminders:**

Report/FAPE 1:

- Administer the TASPs
- Make sure you state clearly which app the student was most successful with in the AAC trials section of the report.
- Send me the report to review ~5 days before the IEP

FAPE 1/Welligent:

- Put "60 day trial" in the description for students who do **NOT** have Low Incidents (LI) services.
- Add "home, ESY and RSY" in the description for ALL students
- If this is a PALS student, the student MUST have an LAS service grid added
- Let me know when the IEP has been inputted and I will review that prior to the IEP

During IEP:

- Let the parents know that they are not responsible to fix the iPads (we will do that)
- I am happy to do a parent/team training via zoom or in person
- The iPad can go between home and school. It must come charged every day to school
- Unless it is being fixed, the student should always have their iPad as long as it is part of the IEP
- It will take several weeks for the iPad order to be ready for delivery

After the IEP is signed:

- **LET ME KNOW ASAP WHEN THE IEP IS SIGNED**
- I will put in a request for the device and once it is approved it will get prepared at Oxford
  a. FOR NON LI STUDENTS: Typically the process takes about 2 weeks once approved depending on how busy they are at Oxford.
  b. FOR LI STUDENTS: The device needs to be approved by the state and this process takes MUCH longer. In the meantime, I can try and get a loaner, depending on if one is available in inventory.
- You will receive an email when the device is ready for delivery and it will be delivered to the school site.
- Once the device is delivered to the school, there will be paperwork to fill out and send back to me.
- If the parents have any concerns or there is a problem, please let me know and we can try to fix it.
- I am always available for parent/team training or any help you might need!

Image 11 - AAC assessment reminders document.

## AAC REPORT REVIEW:

Now that the assessment is completed, the assessor is expected to write the report with support given from the AAC Consultant. This is **THEIR** report, they are the assessor and the report writer. We are just guiding and supporting them to help build confidence and navigate key points needed for the report. During the device trial meeting, a sample of the report template is reviewed with the SLP. Here they are able to ask any questions, go over wording of results and establish expectations. During this activity, those therapists newer with AAC report writing tend to feel more comfortable and better prepared to tackle the report. At the end we will review the report and make sure all the aspects for a successful order are included.

*SLPs Responsibility:*

- Write report
- Send to consultant for review
- Present at IEP
- Notify consultant when signed
- Develop goals.



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*AAC Consultant's Role:*

- 5 day policy: SLP sends full report at least 5 days before the IEP for review
- Correct Report Template
- Consultant's name is under "Tests and Validity", but not as a report writer
- What we look at? The WHOLE thing
- Review what goes into the IEP (FAPE 1, FAPE 2, Goals, PLP)
- Process device paperwork once IEP
- AAC Device order outline
- SLPA role in device delivery: SLPAs typically arrange a device pick up appointment, delivery date, and program the device prior to drop off. They also offer SLPs to arrange device trainings with AAC consultants.

## AAC TRAININGS:

One of the best ways to learn a new skill is to be hands on. The Train the Trainer model is a framework intended for seasoned trainers/SLPs in coaching new trainers/SLPs who are less experienced with the skill. Instead of having one individual who is mastered in the subjects and would need to teach multiple IEP teams throughout the year, this system establishes multiple individuals who understand the skill. In time, this strengthens the team as a whole. (Side Note: AAC SLPAs should not be providing training.)

The way the framework looks is an umbrella system. In that the district SLPs are divided among multiple consultants. Rather than every consultant attending every AAC IEP Team training, the consultant trains the SLP (either groups or individuals) and they then go out and train all their student's teams. The consultant is available for the first few trainings as a support system and then that support is faded. In addition to less trainings being attended, the SLP is establishing confidence in the device and this is reflected towards the teachers and parents. **Train. Model. Observe. Empower. Support.**

*Train the Trainer Model Goals:*

- Faded SLP support from consultant
- SLP is the party planner - they schedule the meeting between them, teacher, and consultant (if needed).
- Everyone welcome to attend. We encourage all the students supports to join.
- The SLPs are able to lead once confident

*AAC Consultants Role:*

- Scheduling multiple trainings with SLP
- Provide SLP with documentation – AKA websites and video tutorials
- Preparing an agenda beforehand with SLP
- Having SLP run specific portions
- Follow up email from SLP to Teacher and Parent

## TREATMENT SUPPORT:

After the device is at the school site, our role is now to support the SLP as needed. How do we do this? We help with any questions that pop up during treatment, but ultimately the support is up to the SLP. With more complex cases we consult more frequently, especially with alternate access. Most of our support is relaying resources, therapy ideas, and assisting any customization needs that they need. Systems are established to help benefit this need and empower the confidence including monthly emails with therapy ideas and resources.

## WHAT ELSE DO AAC CONSULTANTS WE DO? WE ANSWER QUESTIONS LIKE:

- "I think he needs a new app, what do you think?"
- "It's not working, help!"
- "They get angry when I take it out, what should I do?"
- "It's not being accessed by the classroom, can you talk to them?"
- "The iPad is missing, can they get another one?"

## REFLECTIONS:

When we polled a small sampling of SLPs from other districts, we found that 33% of those who participated felt moderately or expertly confident with AAC.

*Further feedback from SLPs in other California districts with a variety of different support styles:*

- "In my last 2 districts it is all on me or the lead SLP. I trial 3 options and we would outsource if we needed a Tobii. We have higher ups that may do it for me. I'm not afraid of it, but I feel I have more to learn." - SLP, Tenn. PS formerly California PS
- "Someone comes out, but it gets pushed back and no one ever comes. I end up just putting the free versions on the classroom iPad and then no one uses it" - SLP, Northern California Public School
- "In my last district there was a team (O.T.; SLP) from the Selpa [Local District Resource] who came out to the school at our request. The providing therapist could trial core boards, communication books, and Go Talk's and use them with students without the SELPA team assessment. We would email them and fill out a form similar to the Communicative Intent form. Then they would put us on the schedule (which often was backed up) and come out together to do the assessment. The assessment was done at the school with the providing SLP. The assessment was done and the report was written by the team. They would also train the teacher, therapist, and parent on the recommended device. "- SLP, Southern California Public School
- "I do them if it is only looking at apps. If we need more, I'd have to have someone come out. The other SLP's I work

with don't feel comfortable doing it, so I do them. But there are only like 5-10 a year." - SLP, Hybrid Charter

- "I feel my workplace could benefit from some different AAC assessment and screening practices in order to streamline the process and have students using devices faster. If there were trained and dedicated SLPs for AAC I think students could be better supported"
- "We have a train the trainer model and it works well. Our biggest issue is turn over and needing to train new staff. The communication partner is always the biggest asset/detriment to the success of an AAC system."
- "I feel like I know what the research says to do, what experts say to do, and in general what are the best practices for AAC, but I often feel like a complete failure, because I get very little buy in from parents and teacher

When SLPs were polled from our district, 74% of the SLPs felt moderately confident within AAC as a whole. AAC assessments, treatment, and screenings appears to instill more confidence when there is a dedicated AAC consultant for the district

*Further feedback from SLP's in our district using the AAC consulting method:*

- "No. The district does not allow nearly enough time to plan meaningful therapy sessions for AAC users. These students are heavy on my workload and my student count does not reflect this."
- "Yes, I have been learning more and more on how to conduct AAC treatment sessions. I have been provided support when needed on how to add pages and icons, how to change the vocabulary level, how to make the vocabulary more robust and personalized."
- "I feel very supported when conducting AAC sessions. Other providers often observe my therapy for examples in how to do a AAC treatment. If I have questions on a specific case I know I can ask my AAC consultant for ideas."
- "I love my AAC consultant!!!! Big help. I've learned so much from them and my reports have improved a lot."
- "I have consistently found our AAC consultants to be professional, accessible, friendly, and realistic about what is likely to help our students access the curriculum. I feel confident that our consultants are there for me and the students I work with when we need them."
- "The AAC team does a wonderful job in advocating for students that need AAC to communicate effectively. Furthermore, the team educates the parents, teachers and SLPs about AAC and its potential scope to improve students' communication."

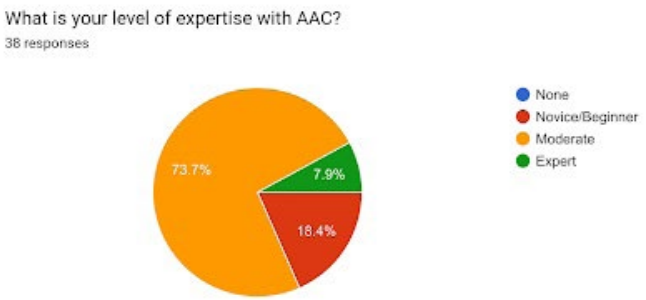


Image 12 - Overall survey pie chart addressing level of expertise with AAC outside of school district.

However, when our district SLPs were surveyed in the area of AAC Training, data found that approximately 50% of therapists who participated felt like a novice/beginner. This was a noticeable contrast to a majority of the data which reflected that the AAC Consulting method was building significant confidence within the SLP in all other areas polled. In order to help better support the SLP. New strategies were put in place.

*AAC Training Support Strategies:*

- Monthly themed office hours. A survey is sent out to the SLP at the beginning of the year to know what specific topics should be targeted.
- The AAC District Support Website. This is a public website available to anyone. It includes items such as manuals and training resources for multiple apps, modeling information and therapy activity ideas/resources.
- App specific training slides to use during AAC team training. This area frequently updated.
- More one on one training with the SLP prior to them training their team.


Image 13 - Image of targeted goals to improve AAC support.



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*Final thought:*

"Thinking that suggestions for technology need to come from someone with the words 'assistive technology' in his or her job title is like thinking that only jockeys can ride horses and only race-car drivers can operate automobiles" (Bugaj, 2018, p. 147). Overall the emphasis on empowering the SLP is helpful to support AAC use and access in school sites. By making other communication partners AAC leaders at their schools, we are growing environments that focus on affirming multimodal communication.

## PRODUCT INFORMATION

| Name of Product | Producer | Price |
|---|---|---|
| Receptive One Word Picture Vocabulary Test - Fourth Edition | Pro-Ed | $220.00 |
| Expressive One Word Picture Vocabulary Test - Fourth Edition | Pro-Ed | $220.00 |
| Peabody Picture Vocabulary Test - Fifth Edition | Pearson Assessments | $274.80 |
| Rosetti Infant Toddler Language Scale | Pro-Ed | $138.00 |
| Receptive Expressive Emergent Language Test - Fourth Edition | Pro-Ed | $208.00 |
| Preschool Language Scales - 5th Edition | Pearson Assessments | $415.30 |
| Communication Matrix | The Communication Matrix Foundation | $5.00 per credit |
| Dynamic AAC Goals Grid - Edition 3 | Tobii Dynavox | $0.00 |
| Functional Communication Profile - Revised | Pro-Ed | $88.00 |
| Early Functional Communication Profile | Pro-Ed | $88.00 |
| Clinical Evaluation of Language Fundamentals - Fifth Edition | Pearson Assessment | $845.75 |
| Test of Aided Language Communication Symbol Performance | Tobii Dynavox | $299.00 |
| LAMP Words For Life | PRC-Saltillo | $299.99 |
| TD Snap | Tobii Dynavox | $10.00 per month (subscription based) |
| TouchChat | PRC-Saltillo | $299.99 |
| Proloquo2Go | Assistiveware Inc. | $249.00 |
| BIGmack | Ablenet Inc. | $155.00 |
| Jelly Bean Switch | Ablenet inc. | $75.00 |
| BIG Candy Corn Switch | Ablenet Inc. | $255.00 |
| LITTLE Candy Corn Switch | Ablenet Inc. | $255.00 |
| Blue 2 FT | Ablenet Inc. | $260.00 |
| Go Talk - 9 | Attainment Company | $239.00 |

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# RECENTLY ADDED WEBINARS

## Adoption vs. Abandonment of AT: Evidence and Soft Skills to Shift the Balance

By Sayard Bass

SAt times assistive technology can become a very front loaded endeavor. We consider the tools, we use knowledge of a person's strengths and needs to match them with a tool, and we keep up with all of the "top 10 tools to…" lists. On the back end we leave it to the implementation plan, though is that enough? Once we find the tool, how do we make sure it is used? There are implementation plans, training plans, ideas of capacity building, models of change, lessons to be taken from the QIAT indicators, research on adoption of technology in general. How does this mesh with the real experience of working with a team?

This session will view researched factors that lead to adoption or abandonment of assistive technology and take a trip onto the implementation side to view evidence based ideas from other fields and how they can give us new insights to building rapport and relationships to ultimately help our clients..


## Building Blocks to Autonomous Communication: Outcomes of a Systematic Approach to Supporting AAC Users

By Carolyn O'Hearn

This session provides an overview of a team-based approach focusing on the what, why, and how of supporting learners with complex communication needs. This seven-block model focuses on AAC fundamentals, AT consideration, building communication partner skills, exploring AAC tools, supporting AAC users with alternative access, developing literacy skills, and communicating beyond the classroom.

Participants will learn about the development of the model and an overview of content included in each block. Participants will also learn how to replicate this approach with their own teams, including the use of coaching and the creation of systems that support the sustainability of the effort.

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# INDEPENDO's Journey to Make the Digital World Accessible to All


Independo Intro Video - https://www.youtube.com/watch?v=t136ll7hR_A

**JULIA KRUSELBURGER,** Co-Founder of Independo. Julia is a passionate advocate for accessibility and inclusion with a deep-rooted commitment to empowering people with disabilities. Since childhood, she has participated in inclusive summer camps, where she discovered the transformative power of technology for individuals with disabilities.

Julia holds a Master's degree in Entrepreneurship and is currently completing a second Master's in Biomedical Engineering. Driven by a desire to create meaningful change, she co-founded Independo (together with Michael, Konstantin and Daniel) to develop innovative technologies that not only make things easier or better but, most importantly, make things possible and accessible for people with disabilities.





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Why Independo's mission is to make the digital world accessible to all:

Around 780 million people worldwide have difficulties reading and writing texts. According to the WHO, at least 5.6 million people could benefit from software for alternative and augmentative communication (AAC) (WHO, 2022). In recent years, mobile technologies have increasingly found their way into the field of AAC. Apps such as TouchChat, for example, make communication easier for people with speech impairments. In addition, photo story apps enable photos to be supplemented with speech and thus promote communication (Bradshaw, 2012; Discover the Joy of Communication, 2023).

AAC also plays an important role in the field of cognition, for example in schools to visualize timetables or in residential facilities for people with disabilities to support self-determined daily activities. However, all AAC planning devices available have one key limitation: they are isolated solutions for the AAC user group. They cannot be integrated with the standard planning devices people use in their environment.

For this reason, we have decided to develop Independo Calendar - a visual calendar diary that can be seamlessly synchronized with common calendar solutions such as Google Calendar. This gives people who use AAC the opportunity to be part of the digital calendar world and to organize their everyday planning in an inclusive and accessible way.

## INDEPENDO CALENDAR WAS DEVELOPED IN CO-DESIGN

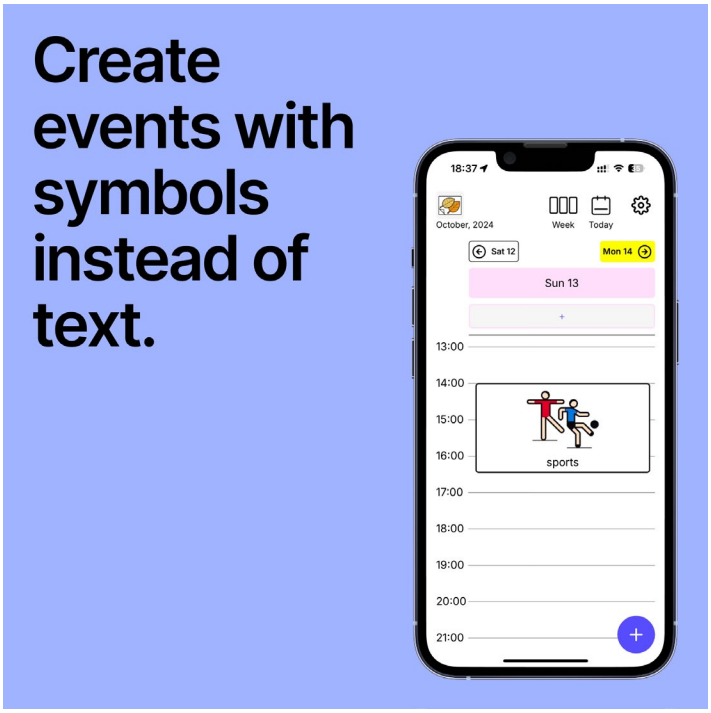
Independo Calendar has been developed in co-design, which means that people who use AAC and their caregivers were actively involved in the design and development process from the very beginning.

In the initial phase of the project, we visited schools and institutions in the DACH region to analyze the AAC planning apps currently in use and question both their advantages and weaknesses. At the same time, we asked local users what their ideal AAC planning tool should look like. The insights gained were directly into the design of the prototype The prototypes were then iteratively tested with the users and continuously improved based on the feedback. In November 2023, the first MVP version was finally created and tested in a pilot phase with 49 institutions. This pilot phase served to collect feedback on long-term use in everyday life and identify potential for improvement.

The Independo 1 version was launched in the app stores in March 2024. A lot has happened since then: we conduct long-term tests and gather feedback from experts in feedback sessions. These findings are continuously incorporated into the further development of the product and the new versions of the Independo app. The current version is Independo 2.0.

## INDEPENDO 2.0

With Independo 2.0, appointments can be created using symbols. Users select symbols that describe what they want to do, where and with whom.



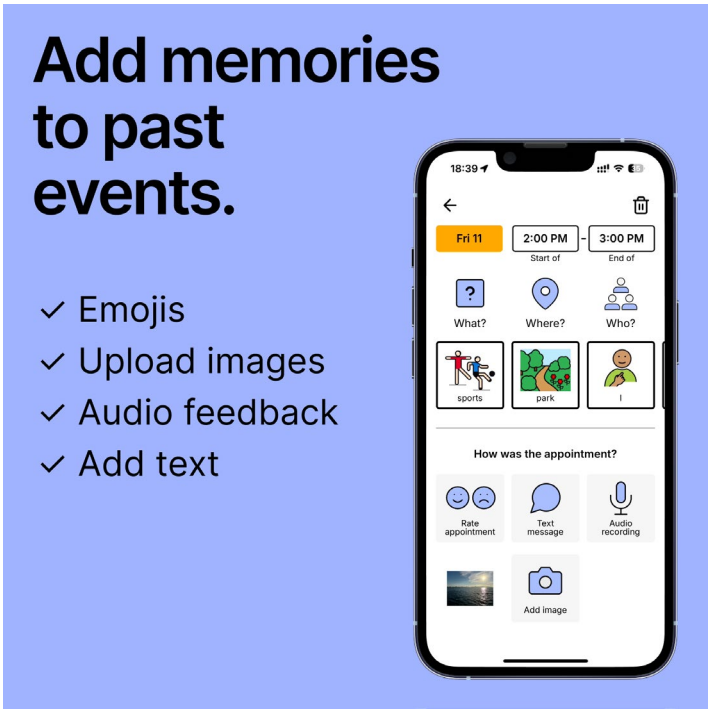

Independo 2.0

It is also possible to add appointments by being synchronized with traditional calendars such as Google Calendar.

With the diary function, past appointments can be supplemented with personal memories. Users can rate activities with emojis, upload personal photos and voice messages, and add text messages that can be read aloud.

The settings menu in the app allows users to tailor the app to their needs. For example, they can choose whether they want to use analog time, digital time, or the time of day to display the clock.


Synchronized with traditional calendars such as Google Calendar.




With the diary function, past appointments can be supplemented with personal memories.

## INDEPENDO PRICING & DOWNLOAD

The Independo App is available in the app stores on a subscription basis. Users can choose between a monthly subscription for €4.90 and an annual subscription for €49. Additionally, discounts for groups are being offered. More information about the pricing can be found on our website.

Play Store: https://play.google.com/store/apps/details?id=app.independo.calendar&hl=en

App Store: https://apps.apple.com/at/app/independo/id6471966038

To facilitate a smooth onboarding experience, instructional videos have been prepared and can be found on our YouTube channel. ■



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