Assistive Technology Resources for Children and Adults with Disabilities

Closing The Gap

Solutions

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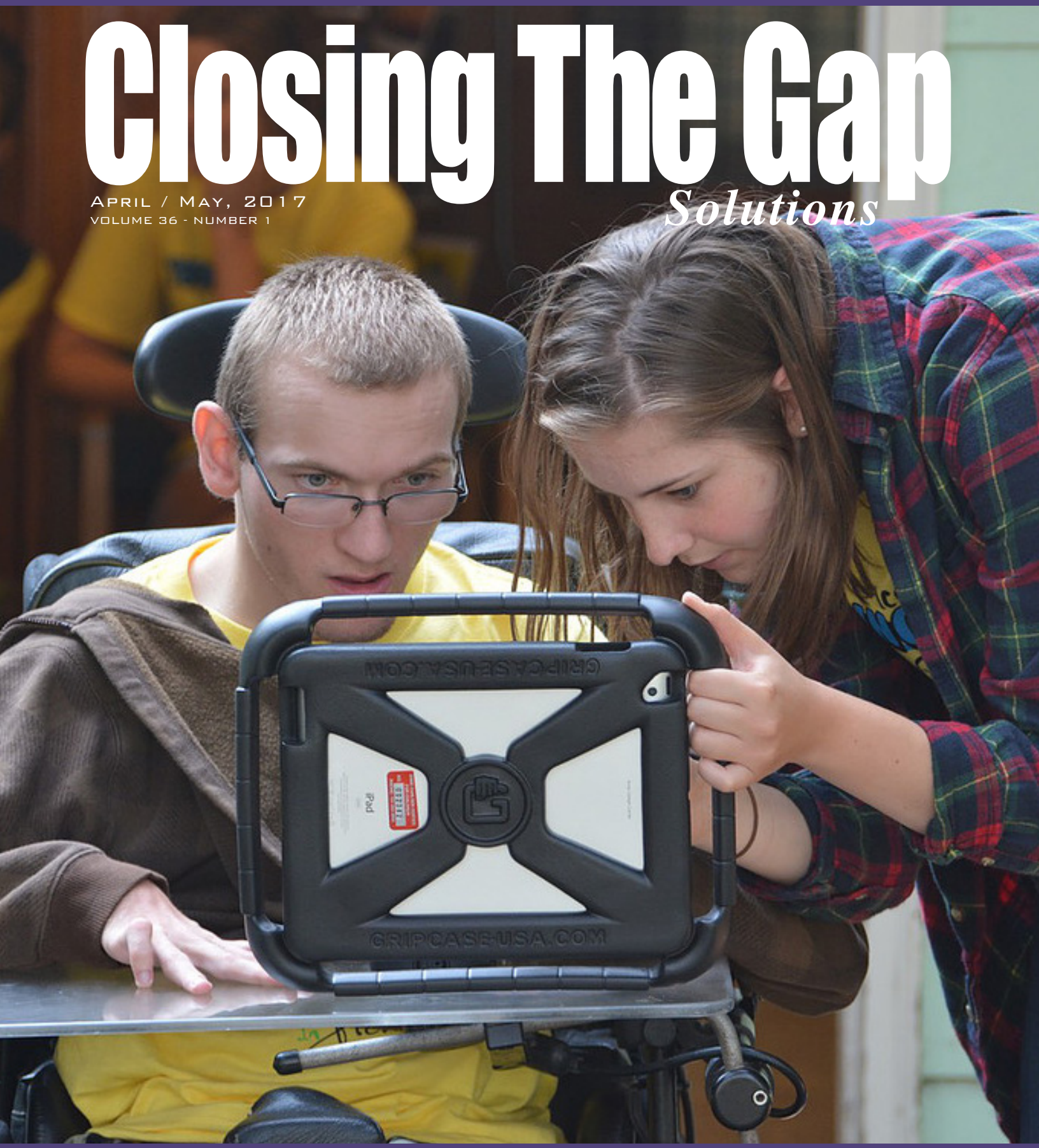

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Toolkit for Transition:

Preparing Students for Postsecondary Education

TRANSITION PROCESS

Attending an institution of postsecondary education can be one of the biggest decisions and transitions young adults encounter. Students, for the first time, are in charge of their education that will shape their career path, their living arrangements, their schedule, social and recreational decisions and the friends they choose to have. These changes can alter the course of a student's life, but also provide the growth and experience to launch them into the adult world. However, this transition can present increased challenges for students who identify as having a disability. Students are leaving a familiar setting in K-12 education to a new postsecondary institution. Developing a consistent and strategic plan to help bridge the process from being dependent to independent will enable students and families to achieve a successful transition. This article will provide information about the differences between education settings, resources to help during the transition process and commonly used tools in both settings.

As students begin their transition, they are likely to experience a handful of changes. Students transitioning from K-12 to higher education are leaving the environment of a case manager, where one adult advocates for their needs, and are entering a flipped model, where they have to advocate for themselves. A study conducted by the Quality Indicators for Assistive Technology (QIAT) showed 85% of students are not familiar with assistive technology tools until they get to postsecondary education; however, 91% of the students from this survey stated that assistive technology is Very or Somewhat important to complete tasks independently and successfully (2015 AT Survey Report, 2015).

This fundamental early learning, the importance of assistive technology tools in the secondary environment, underscores a key early difference between education settings and highlights the need for a strategic transition plan. Post-secondary institutions see the need, as well. Consider this statement from the National

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RACHEL KRUZEL, ATP, is the Assistive Technology & Accommodations Specialist at Augsburg College in Minneapolis, Minnesota and is a RESNA Certified Assistive Technology Professional(ATP). She has a Bachelor's Degree in Psychology and over 7 years of experience working in higher education with assistive technology and students with disabilities. Her work in the CLASS Office (Disability Resources) at Augsburg College focuses on assistive technology, educational technology, transition from K-12 to higher ed, academic accommodations implementation with college students and digital, electronic, and Web accessibility. Rachel has presented both regionally and nationally on the

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Center for Education Statistics, published in 2013, that "70% of degree-granting [postsecondary] institutions report assistive technology as a core support to meet the needs of students with a disability."

To further emphasize how critical transition is, a study completed in 2016 by the Colorado State University Assistive Technology Resource Center showed just how important assistive technology is to performance and satisfaction in academics. In this study, students rated their performance on academic tasks, such as reading, note-taking, writing, and studying. When students used assistive technology, their rating of production increased from pre- to post-assistive technology intervention. (Malcolm, 2016) As a result of research in the field, assistive technology is becoming more integral in supporting students in the postsecondary level.

This evidence opens the question: "How are we preparing our students for the transition to postsecondary settings?" Seeking to answer this crucial question led to the development of a tool to help support teams in transitioning students to higher education. The Toolkit for Transition was created as a tracking tool to help guide and support special education teams in the K-12 setting through the journey from K-12 to postsecondary education. School district IEP teams can use this tool before and during the transition process as part of the documentation provided by the students during the intake session with the postsecondary disability resources office. The Toolkit for Transition works alongside the Quality Indicators for Assistive Technology to help track, not only a student's familiarity with certain assistive technology tools/devices used in K-12, but also their general knowledge of assistive technology in a global sense.

When deciding the best way to prepare students for a major transition in their life, it is important to identify the areas in assistive technology where exposure to tools varies in public education settings. As an example, in a K-12 setting, low incidence disabilities are typically exposed to assistive technology, whereas the high incidence population group is often not presented with assistive technology strategies until the student arrives at postsecondary institutions. Students with high incidence disabilities are the largest population of students on a college campus. The individuals who have a learning disability, attention-deficit/hyperactivity disorder (ADHD) or a mental health disability are more likely to be exposed to assistive technology tools for the first time after connecting with the disability resources office.

In addition to the lack of exposure to assistive technology tools in K-12 settings, a parallel conversation is often started on students with disabilities relying on human-based supports versus technology-based supports to complete the required tasks. Determining assistive technology tools can be challenging for students if they have never had access to these tools in the K-12 setting – not to mention navigating assistive technology tools while adjusting to the new postsecondary education life!

DIFFERENCES BETWEEN K-12 AND POSTSECONDARY EDUCATION

Why is this transition so hard? As a student prepares to leave their home, from supported network to living on their own, there can be significant adjustments mentally, academically and socially. For students who have relied on parents, special education professionals, support, accommodations and yearly monitoring, they are now expected to be responsible for their future. In the process of transition from one setting to another, a student needs to understand the differences between K-12 and postsecondary. There

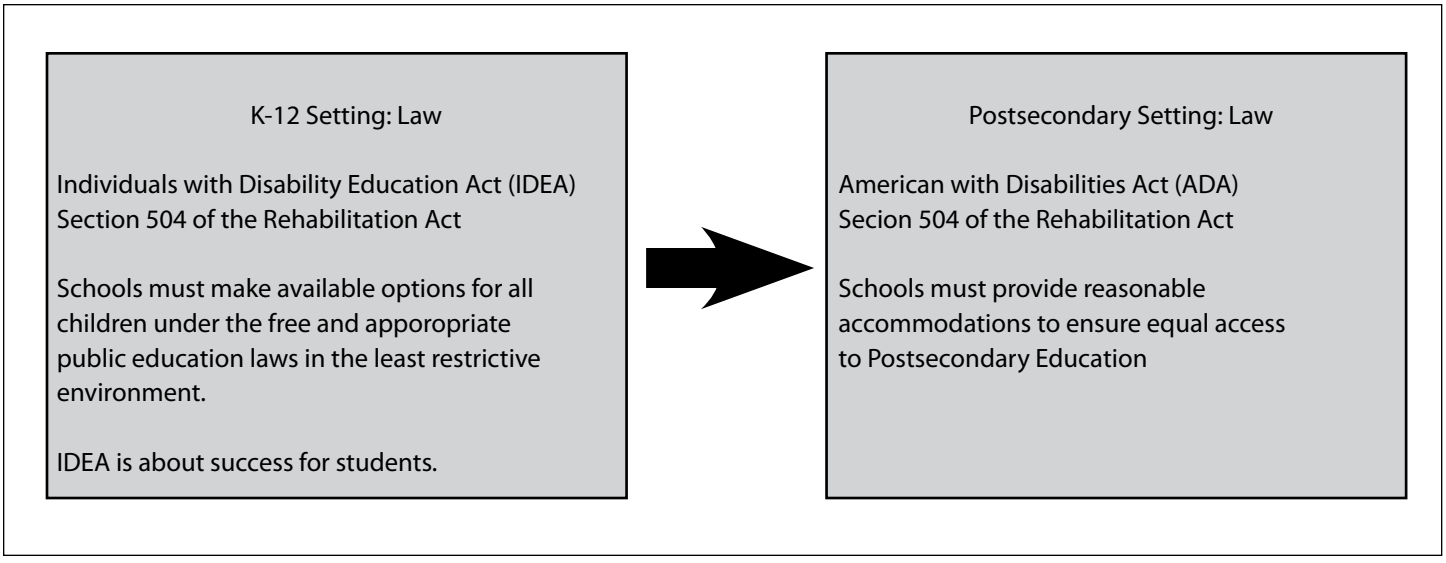

Figure 1 - Differences in Disability Law

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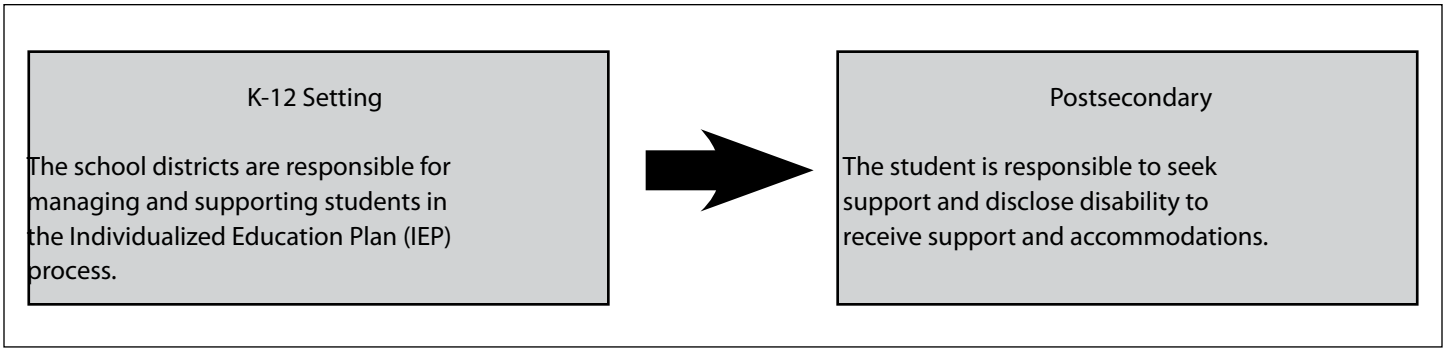

Figure 2 - Differences in Student Responsibility:

are four major areas of differences: disability law, student responsibility, academic accommodations and expectations.

Differences in Disability Law

1) Disability law is one of the first areas where K-12 public education and postsecondary settings are different. The two environments are governed by a set of laws that do not follow the same guidelines or how they are implemented. The chart below summarizes the changes in the law when transitioning from K-12 setting to Postsecondary.

Differences in Student Responsibility:

2) Student responsibility is another area where differences between K-12 and postsecondary education are present. Students have an increased amount of responsibility, which includes self-determination or advocacy skills for the transition to postsecondary. The student is required to advocate or recognize the need for educational supports and services. The transition process in high school introduces the idea of change in responsibility; however, students and families sometimes do not comprehend how difficult it is to develop this skill.

Differences in Academic Accommodations:

3) The method in which academic accommodations are provided in K-12 and postsecondary education is different. Institutions of postsecondary education are being given guidance to use technology in the place of a human, if at all possible, to implement accommodations for a student.

Institutions of higher education are upholding the guidance from the Association of Higher Education and Disability by implementing technology and removing the possibility of human error in the accommodation implementation process. The Association of Higher Education and Disability, the governing body for Higher Education Professionals working in Disability Resources Offices, has provided the following guidance to professionals:

"...acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective and equally integrative manner, with substantially equivalent ease of use." (A Clear Standard, (n.d.).)

Differences in Expectations:

4) Finally, expectations of students are different in postsecondary education compared to K-12. Postsecondary education focuses on how a student will accomplish the same competencies and expectations as their postsecondary peers. Technology is traditionally added to meet these expectations.

RESOURCES IN PREPARING STUDENTS FOR POSTSECONDARY EDUCATION

As students transition from K-12 to postsecondary education, preparation and education can only help students to make a seamless move. Two resource tools available to students, parents and special education teams can help with this process: the Toolkit for Transition (T4T) and the Quality Indicators of Assistive Technology (QIAT). In addition to these two tools, having a basic knowledge of assistive technology tools Disability Resources Offices use to support students is important.

Even before a student arrives on a postsecondary campus, students should register with the disability resources office. Through an interactive process, including a structured interview and looking at a student's disability-related documentation, the disability resources offices will determine reasonable accommodations for a student. Once determined, accommodations will be implemented for students in the areas of academics, residential life and social aspects of campus. Students who understand their disability can effectively advocate for themselves, as well as know what assistive technology tools they may have used before, with or without success, which is essential for a successful transition for any student (Bowser, Carl, & Fonner, 2015).

TOOLKIT FOR TRANSITION: ASSISTIVE TECHNOLOGY RESOURCE

Students transitioning to postsecondary education, who are familiar with assistive technology, often cannot articulate the assistive technology tools they have used or tried in the past, successfully or unsuccessfully. As a result of this observation, it begs the question: "How do we better help our students articulate the assistive technology tools they have used with or without success for the transition process and begin working with the disability resource office at postsecondary institutions?"

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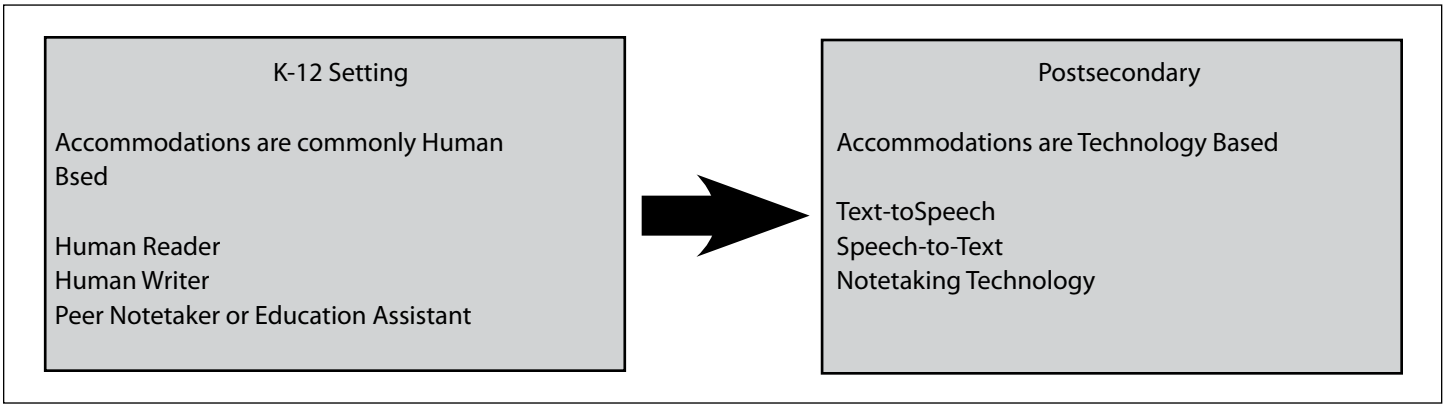

Figure 3 - Differences in Academic Accommodations:

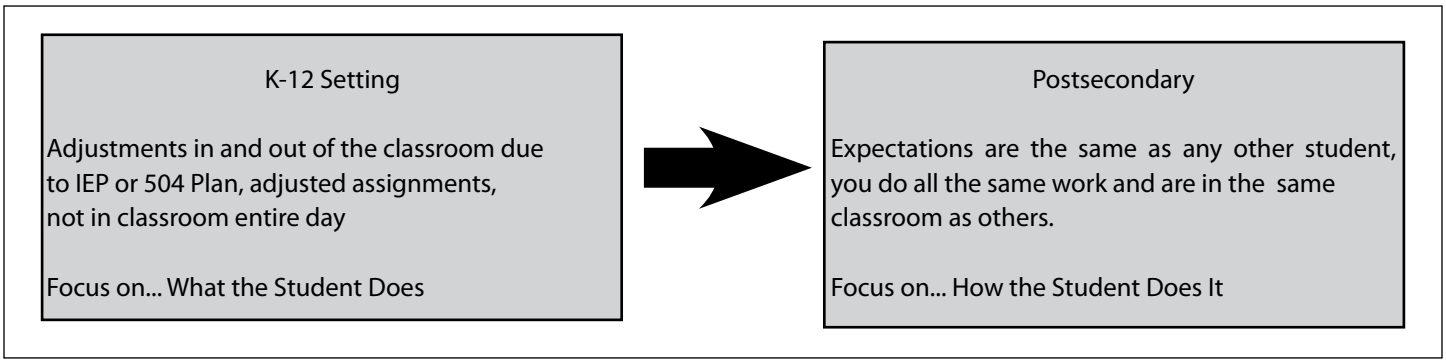

Figure 4 - Differences in Expectations:

One possible resource to help bridge the gap in the transition process is the use of the Toolkit for Transition. This tool allows special education teachers, assistive technology specialists, IEP and 504 teams, and transition teams to track assistive technology tools used during their tenure in K-12, along with the proficiency level of each tool. The Toolkit for Transition is broken up into 13 categories of assistive technology tools that students who frequently transition to postsecondary institutions would use on a college campus to gain access to their academics on campus. The 13 categories within the Toolkit are Reading Literacy, Writing, STEM, Task Management, Time Management, Organization, Study Skills/Research Support, Communication, Computer Access, Hearing, Notetaking, Distraction Free and Stress Management/Relaxation. The blind/low vision or vision specific supports are included throughout the 13 categories, but not listed as an individual category.

Within each of the 13 categories are subcategories, which break down the different tools within the broad categories. For example, within Reading/Literacy, Text-to-Speech or Enlarged Printed are subcategories. The basis of the subcategories is from the Wisconsin Assistive Technology Inventory (WATI) (Gierach, 2009). The tools a student has used over the course of their education can be placed in the categories and subcategories to help record all the tools a student uses. With each tool, school staff or teachers rate a student's proficiency on the tool using a five-point scale. A five-point scale used in Toolkit for Transition came from the Competencies Proficiency Scale, courtesy of the National Institute of Health (Office of Human Resources at the National Institutes of Health, 2009). *Figure - 5 Competencies Proficiency Scale: National Institute of Health*

As students begin their transition process to higher education, this tool can be included in their portfolio to bring with them to disability resource offices. With this tool, disability resource providers or assistive technology specialists in the postsecondary environment will be able to have a snapshot of tools used before a student's intake and meeting with staff. This tool can also be used as a talking point for students in meetings with disability resource professionals or assistive technology specialists. Students can use the toolkit to guide their conversation during an intake interview to explain which assistive technology tools were successful or what tools were not effective and why. This tool can help students build advocacy skills to help them begin talking about their assistive technology tool familiarity. Transition teams can have students practice mock interviews with disability resource offices while using the tool to help advocate for their assistive technology needs.

QUALITY INDICATORS FOR ASSISTIVE TECHNOLOGY IN POSTSECONDARY EDUCATION

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Scale Measure	Description	Focus Factor
1 - Fundamental Awareness/Basic Knowledge	Common knowledge or understanding of Assistive Technology Tool.	Focus is on Learning the Tool
2 - Novice/Limited Exposure	Some experience with the tool and likely needing help to successfully use this Assistive Technology Tool.	Focus is on Developing Skills with the Assistive Technology Tool
3 - Intermediate/Practical Application	Student can successfully use the tool as requested. May need support from time to time but can usually use the tool independently.	Focus is on Applying and Increasing Knowledge and Skills with the Assistive Technology Tool
4 - Advanced/Applied Knowledge	Student is competent with tool and can perform tasks without assistance. Student can apply the tool's use to other tasks.	Focus is on Proficiency
5 - Expert/Mastery	Student is Expert at Assistive Technology Tool. No support is needed to use tool.	Focus is on Competence and Application Across Tasks or Activities

Figure 5 - Competencies Proficiency Scale: National Institute of Health:

Another beneficial tool for students, parents, teachers and support staff to help students transition is the Quality Indicators for Assistive Technology - Self Evaluation Matrix. A group of assistive technology professionals created the QIAT in 1998. As a result of hands-on work with students and first-hand experience with assistive technology in the K-12 system, both as professionals and parents, the overall message was that there was no formalization in writing of what quality assistive technology descriptors were. The QIAT leadership team continues to work to create, modify and produce these descriptors, known today as the Quality Indicators of Assistive Technology.

The Quality Indicators of Assistive Technology is made up of two parts: the Campus Self-Evaluation Matrix and the Student-Self Evaluation Matrix. The Campus Self-Evaluation Matrix is used by college disability resources office to rate their skills, knowledge and competence in five main areas of effective assistive technology implementation and execution for their students. The QIAT Campus Matrix rates the following five areas where the indicators measure the stage of a campus or office on a total of 25 items. Descriptions for indicators are quoted directly from Campus Self-Evaluation Matrix, 2017. *Figure - 6 Campus Self-Evaluation Matrix*

Post-secondary institutions are encouraged to use this tool to benchmark their programs on a regular basis. Once a campus completes the matrix, they can take their scores and create an action plan addressing areas where more development in their program could occur. Campuses can use the online account tool to administer this tool within their campuses, create their action plan and save these results for up to three cycles.

The second tool within the QIAT is the Student Self-Evaluation Matrix. This tool is made up of 10 indicators addressing the student's assistive technology skills. Students can rate themselves to determine areas of proficiency and areas of needed growth before attending or while attending postsecondary institutions. The Student Self-Evaluation Matrix is made up of the following indicators. Descriptions for the indicators are quoted directly from Student Self-Evaluation Matrix, 2017.*Figure 7 - Student Self-Evaluation Matrix:*

Students who take this matrix before beginning their college transition process can add this tool to their college portfolio to present to disability resource offices upon inquiry, acceptance or when meeting with the office to support the transition. With the disability resource office knowing where a student stands on assistive technology knowledge and skills, the office can meet the student where they are at in their assistive technology acquisition journey and support them at their proficiency level. Likewise, if there are areas of development determined, transition teams can begin to instruct students on how to increase their advocacy skills, as well as their assistive technology knowledge, so that once they arrive on a college campus, the student can be better prepared to partner with the disability resource office and advocate for their needs.

Disability resource offices can also use their accounts to send the Student Self-Evaluation Matrix out to students to complete before coming to college.

Indicator	Description
Awareness and Eligibility	"...steps programs take to make sure that students with disabilities are aware of AT services on the campus and know how to access them"
Planning and Implementation	"...things that programs do to make sure that students are able to use their AT devices as accommodations in classrooms and other campus settings."
Evaluation and Effectiveness	"...addresses activities that programs engage in to help ensure that their AT services are effective and as efficient as possible."
Administrative Support	"...administrative supports that are necessary in order to ensure continuity of program improvement efforts are described in this area… development of policies, procedures and other supports needed in order to maintain and improve AT programs at the Post-secondary level."
Professional Development and Training	"...describes critical features of AT training efforts for all staff and other key players in the AT program."

Figure 6 - Campus Self-Evaluation Matrix

Once completed, these matrices reside within the online account for the college so that college personnel can access this when working with a student. Likewise, transition teams or K-12 staff can use this tool and administer it to their students to gauge their level of readiness.

Paired with the Toolkit for Transition, a student can transition with a robust portfolio to help guide them through to a successful start at their college of choice. With advocacy skills, broad knowledge of assistive technology and a solid understanding of specific tools that have benefitted them, students will leave high school more prepared for the next step of their education.

COMMONLY USED TOOLS

Given higher education's focus on assistive technology to provide access and accommodations to students, the use of assistive technology tools is important. The changes and evolution of more products in the assistive technology market, not only in the purchasable software and devices, but also free and low-cost options, offer countless tools for students to access. Some of the common tools used in higher education are below. Key note, listing tools here does not count as a product endorsement, but, instead, as a guide for K-12 educators and teams, as well as parents, to begin researching and exploring with their student so they are as prepared as they can be if they qualify for and begin using these tools in postsecondary education.

TRANSITION TO SUCCESS

As students transition from K-12 to postsecondary education, transition teams who utilize the Toolkit for Transition, in addition to the QIAT Student Self-Evaluation Matrix, provide students with additional support tools and resources during their journey to college. These resources and tools can help guide a student's familiarity and eventual mastery of assistive technology, in addition to helping build advocacy skills that can benefit a student lifelong as they move, not only through college, but as they move through post-college life.

Keeping it simple and developing a consistent and strategic plan to help bridge the process from being dependent to independent will enable students and families to achieve a successful transition. Utilizing a consistent and strategic plan that addresses the educational setting differences, resources available to the student and specific tools for student success will provide an excellent foundation for a successful transition.

RESOURCES FOR POSTSECONDARY TRANSITION

- Toolkit for Transition Appendix of Tools (T4T)
- Quality Indicators for Assistive Technology-Student Self Evaluation Matrix
- Quality Indicators for Assistive Technology-Campus Self Evaluation Matrix

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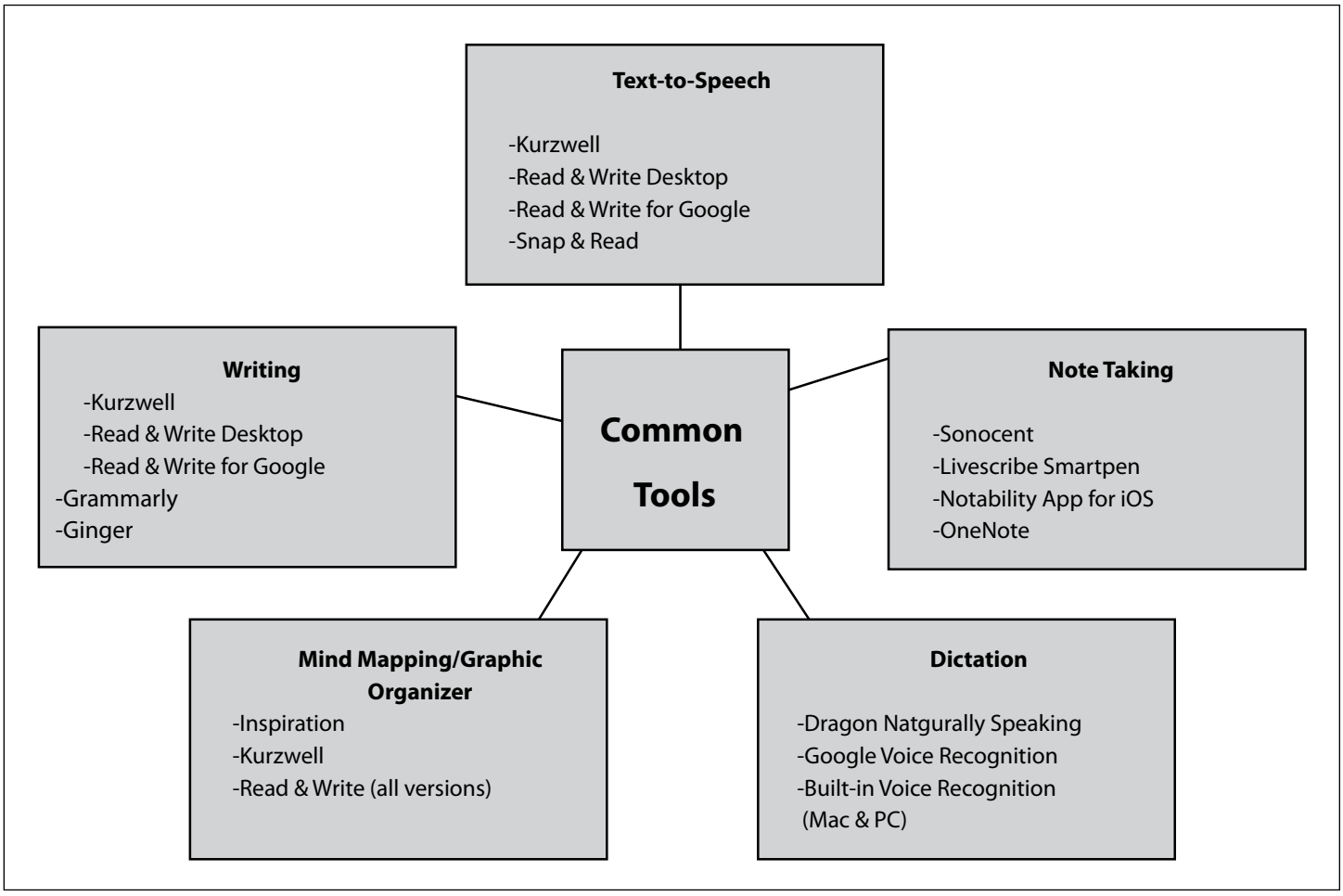
Indicator	Description
AT Self-awareness	"The student is aware of the impact of his or her disability on performance and knowledgeable about AT used to address that impact."
Knowledge of Legal Rights Regarding AT	"The student understands the laws which address the rights to accommodations and the use of assistive technology, including how to get help when access is denied."
Disclosure of Disability for AT Accommodations	"The student understands that federal laws require disclosure of disability information in order to acquire necessary AT devices and support. The student is able to provide the information needed in order to request an AT accommodation effectively."
AT Self-Advocacy	"The student knows about available AT supports and takes a leadership role with disability services or other agencies to acquire needed AT devices and services."
AT Communication	"The student is able to effectively communicate with faculty, service providers and peers concerning his/her disability and the way AT is used."
AT Self-evaluation	"The student knows how to evaluate personal performance when using AT and makes adjustments in AT use in order to improve performance."
Strategic Use of AT	"The student uses a variety of AT solutions and can independently choose the appropriate AT option for each situation."
Independent AT Use	"The student uses AT accommodations effectively and independently."
AT Problem Solving	"The student knows strategies for identifying issues, problem solving difficulties and acquiring technical assistance when needed."
Long-term AT Planning	"The student knows how to make long-term plans for AT selection, acquisition and use."

Figure 7 - Student Self-Evaluation Matrix:



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A Journey to Find the Right Way to Communicate

From the moment that our daughter Chloe was born, I knew in my heart that there was something that was a little different. That feeling I felt so deeply inside, but I just thought that she would start to progress and make gains eventually. We went to different doctors hoping for answers. We were given statements such as, "Don't compare your children" and "Each child develops differently." These were quite frustrating times. Even though we had an older son Alic, they were nothing even close to the same. While Alic interacted early on with smiles and coos, Chloe just laid there silently. While he was running and jumping, she was unable to sit up on her own or even bear weight on her feet at the age of one. There were so many other concerns that we saw, but were we were over-thinking Chloe's development? As the first two years went by and the gap in skills grew bigger. Finally, doctors were listening and saw the same things that we were seeing. They referred us to a geneticist for further testing. From the moment that we walked into the room, he told us right away what he would test for and was quite certain what would come back as the result. This was affirming after interacting with Chloe for mere moments after years of trying to get anyone to listen.

Image 1 - Alic and Chloe

When we first got the news that Chloe had Angelman Syndrome (AS), we were crushed. We were met with a list of things she would not be able to do, which was far longer than the list of things she would be able to do. We were told she may never walk or talk, she would be dependent on us for the rest of her life, and she would never learn like her same-age peers, she may have seizures and a list of so many more things. So where do we go from that diagnosis? Do we push the limitation, or do we give in to the diagnosis and just settle? We chose to push, and when I say push, I mean we pushed hard. From this, we saw great things each and every day. We chose not to sit and feel sorry for her. Actually, Chloe changed my way of thinking completely. Chloe is truly more than what it says she is on paper. Chloe simply amazes us each day. Little advances soon became huge milestones. Hard fights soon became easier just by simply seeing the smile and hearing the giggle that came with this complex disorder. Chloe opened our eyes to more in the world

ELLY TEPLEY - I was born and raised in Minnesota and graduated with a degree in Cosmetology from Minnesota State Community and Technical College. I am the mom of three amazing children and the wife of a wonderful husband who works very hard so I can have a schedule that works well to be home with my children more. I love working hard to give my children all that I possibly can each day.

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than we ever could have found on our own. This syndrome is more of a blessing than a burden. AS is a teacher in life that I would have never found, or learned about, had I not experienced it first-hand.

We never imagined with this diagnosis that we would ever have to fight as hard as we have had to. With AS, Chloe was able to start school at 3, and we moved through the educational process of IEP's, inclusion, classrooms geared to children with specific needs, changing schools and learning alongside our child each day. Seizures came full force, and each time she made a gain, these seizures seemed to take over. A skill learned would be ripped away suddenly with the onset of seizures that we could not treat. It was, and has been, an eye-opening experience, and she is only in fourth grade. This is a lifestyle that they don't warn you about when they give you the diagnosis of AS. The acronyms that the school first throw at you are overwhelming. The goals that the teachers propose to make my daughter successful. The constant realization that I know my daughter and her needs more than the school staff and trying to get that point across. Through the years we have fought for her education and tried to figure out negative behaviors only to overlook one thing each and every time. Her voice! You see, Chloe is nonverbal, and we have always tried to get her to use buttons, devices, sign language, gestures and so much more only to push them aside when they got too hard. Not hard for Chloe, hard for the people who were trying to get her to use them. The years have gone by, and she has really learned to get her point across but never by more than using the handful of signs that she had carried with her. Chloe can ask "please" and shoot you those puppy-dog eyes and pretty much get anything she wants from you. Or she can tap a chair with force to make you sit where she wants you to, but is this really the only form of communication that we will settle for? Or do we push for more? Is she ready for something else? Will this also be too hard to learn? Where do we go from here to move on to more meaningful communication? This is where our minds were stuck. Once again it was put on the side and not thought of again.

Image 2 & 3 - Chloe and her peers using her iPad in the classroom

After many years of going through apps and devices and getting frustrated with them, Chloe is finally starting to love using an app called Language Acquisition through Motor Planning (LAMP). We have gone through many apps and people telling us that we need to decrease the amount of buttons. We need to simplify things and slowly add more buttons and go from there. We started with twelve buttons on most and went from there. Twelve buttons were too much and needed to be modified and pretty soon we were down to two buttons, "Yes" and "No". How is this acceptable? Do we meaningfully communicate by only being able to say yes and no? Absolutely not! I can see now looking back why Chloe became so

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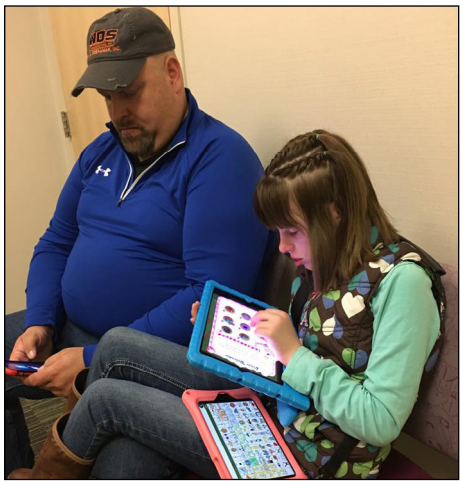

Image 3 - Chloe wearing her iPad with Dad (Andrew) at the doctor

frustrated with this process ... as a parent, I was frustrated with the process. Chloe has more to say and is not able to say it. We see more negative behaviors and wonder why she is doing these things. Chloe had many years of seclusion in the center-based classroom and frustrations building up and now they are starting to boil over and show themselves. Honestly, if I could not communicate effectively, I would be frustrated too!

So now we fast-forward to her fourth grade year. We have her IEP where we want it, with goals that are attainable and meaningful for her. We have a center-based classroom with open minds to try new things. We have a mainstream classroom teacher with the desire to have her included in any and every way. We have an amazing new Speech and Language Pathologist (SLP) who is looking for the best options out there for Chloe. We have peers who so desperately want her to be with them in the classroom. This brings us the first year of having the right mix of everything to help Chloe excel with her communication. While the communication is new, it is a huge eye opener. It is so very fun to see that for the first time that she is happy in her surroundings. She is communicating and loving it. She is just like any of the other children in her class. She is more than her diagnosis of AS.

In her fourth grade classroom, students are learning by reading a book "Out of my Mind" which is a book about a girl who cannot talk and uses a communication device. This has brought up so much great discussion and really meaningful questions and understanding from her classmates. Chloe has truly begun to form meaningful bonds and friendship with those around her. To see her with her peers that have become friends is simply amazing. I am in awe of these friends that she has this year, and I truly feel that there will be lifelong bonds and friendships between them. These are the students who make her feel like she is telling a story when she is making sounds of any kind. We hear conversations that no longer feel one-sided. They are always watching out for her and I feel they notice no difference at all. Inclusion is being included in all aspects of her day.

I get to see the positives of Assistive Technology in the classroom and with her friends first-hand each day. I work in the school that Chloe attends, so I see her at different times throughout the day. Chloe has started to wear a harness with her iPad on it so that her "voice" is accessible throughout all parts of her day. She is learning new vocabulary every day. As Chloe walks down the halls, I hear the conversations that are triggered by Chloe wearing her iPad, or using her iPad to get her point across. That is a dream come true. When we first started to use the app that she uses now, (LAMP), it was so very scary. We were going from being told that twelve buttons were too much, to having a home screen that has eighty-four buttons on it ... YIKES! That was my first impression. Such a scary thing, which got my mind racing and thinking, "Is this the right thing?" You see, unlike most apps or devices that we had dealt with before, this app uses muscle memory. Once Chloe learns the motor plan for a word, it is never moved. That word requires the same motor plan every time Chloe wants to say that word. It was so different than any other app we had tried, and she was catching on so quickly. Maybe we have finally found the missing piece in our meaningful communication. This was a life-changing moment for us. In such a short time, we were seeing the thoughts that have been locked in her head for so long. Finally, we were able to see that she has so much more to say than a simple "Yes" or "No." Chloe was finally sitting in the backseat saying "Are we there yet" or "Boring" just like her brother and sister can say so easily. It got me thinking, why did we not push for this sooner? The truth is that we did push for it... we pushed for it around every turn and hill and bump on our journey. We didn't see it until we found the right puzzle piece that was missing which was an app that worked for Chloe. Now, as we're learning the mechanics of this communication app on her iPad, we are constantly finding ways to use it. I think that is what has made the biggest difference. As we are driving in the car, I ask her to find the colors, she always replies first with "What?" and then giggles before she goes on to find the colors. We talk about what she needs to wear before we go outside. We talk about how the day is going to go and what she will do in school. We are starting to have great conversations.

I do feel, though, that the most meaningful and important communication is the conversations we are seeing within the classroom with her friends and peers. We are seeing that the modeling they are doing with her is making the most impact on how she is learning this communication. In the classroom, she has "friends of the day," which means that each day she has 3 friends that sit by her and help her along. They ask her specific questions and help her to find the answers on the iPad. It is amazing! They help her to find the button, and then the next time, she is able to find it on her own. The praise they give her makes her try again. Through the years of trying new things and trying to find the right fit, we have never had as much success as we are having right now with her peers helping to model and guide her through the steps. One thing Chloe wants so desperately is to be like everyone else, and now she is starting to blend into the classroom and not stick

Image 4 - Chloe and Lydia

out. Communication at its finest. I have heard and observed many great things in the classroom. Chloe has her helpers by her side as they are helping her to answer questions and join in on the conversations. In a room full of chatter, we now hear the sounds from Chloe. She will use the iPad for communication whether it is for answering or asking a question or to make a joke with a friend. Any time that she chooses her communication device instead of a negative behavior is a successful moment in my book.

We are also seeing appropriate misbehavior coming from her, and even though it is not "okay," I still giggle a little in my head. For instance, Chloe has a younger sister Lydia who drives her crazy most days. Chloe has found the button on her LAMP app that says "dumb." Chloe finds this button and uses it just as I am changing rooms sometimes, so I am out of range. Pretty soon her sister is screaming, "She called me dumb!" I gently tell Chloe this is not okay, and she navigates to "sorry." Silently, I celebrate. Really, this is what she is thinking and probably would be yelling if she had the ability. I love to see these interactions with not only her peers but her siblings. At home, her greatest teacher is her older brother Alic. Alic is the guiding voice when no one else can get through to her. Alic is the teacher who navigates her to "fart", "burp" and the "butt" buttons, but then again that is "typical" brotherly communication, and it melts my heart. It's wonderful to see the importance that Chloe now feels with each interaction she is able to make. She is now able to say how she feels, what she wants, what she likes, or what she doesn't like. Finally, we are seeing all the great things that have been bottled up in her head for all of these years just waiting to be set free. Chloe's creative and kind spirit comes through in not only her actions but now in her words. I am so grateful to have found this app on the iPad. I am also really grateful for the journey we went through to find this perfect app. We have been through trials and learned ample about effective communication. Modeling is our greatest tool in moving forward with this, but the peer interaction is a close second to that. To have the validation from peers and friends is so much more rewarding than just hearing from teachers, therapists, or parents. So, in this journey of your own, do not give up hope. Do not give up when it gets "hard." As important as it is to use the apps or devices, it is even more important to find the right one for your child. What works for one child may not work for all. The fight, the tears, the joy, the pain, and the chaos are all worth it. Having a child with complex needs may be a weight at some point, but it also holds a lot of lessons and rewards that far outweigh the load. While this was a journey I would have probably not have picked on my own, I am so glad that I was chosen to walk this path and to fight this fight. ■

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DISKoveries

New Ways to Play and Learn with the iPad:
Interactive Play with Off-Screen Manipulatives and Smart Toys with Apps

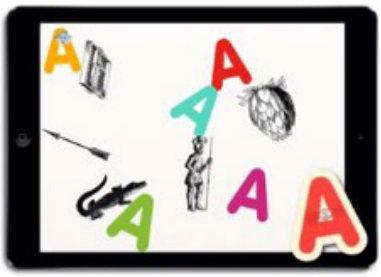
By Joan Tanenhaus

iPads and other tablets continue to be an increasingly important focus of our everyday lives. This article takes another look at new products that help children of all ages interact with their iPads, individually and/or in groups, by using and manipulating related physical objects, such as letters, numbers, robots, coding tools and more. It also presents a group of Smart Toys that expand their learning and fun with related apps. Great for language learning, motor skills, visual spatial abilities, literacy, STEM, critical thinking and problem solving, the iPad, manipulatives and Smart Toys also set a context for turn-taking, cooperative and competitive play and for the enhancement of social skills, conversation and communication.

SMART LETTERS (WWW.MARBOTIC.COM)

Smart Letters: Smart Letters contains 26 high quality wooden upper case letters that work together with three free apps on iPad2 and later, and with some Samsung tablets. (See website for a complete list of tablets that work.) The front of each letter has a metal handle that makes it easy for children to grasp and press the letters. The back of each has three small rubber-like "feet," all in varied spots that identify them as particular letters when they are placed on the screen. Children grasp the handle and stamp the letter on the touchscreen. The currently available apps are:

Vocabubble, the first Smart Letters app (and all the others), can be played in six languages (French, British English, American English, German, Spanish or Dutch). There are two modes to play. When playing with the sound mode of the letters (phonics), you will only see words that begin with the exact sound of the letter. For example, for the letter C (which makes the [k] sound), the words crab, card and canoe will appear, but not the words such as cheese or chimpanzee. The letter mode will show words that begin with the letter c, even if the sound is not (k), such as cheese or chimpanzee. There are two alphabet games. In the first, an alphabet screen appears and children press any letter. That letter then appears on screen and when the user puts the correct wooden letter on screen and taps several times, pictures beginning with the sound appear. Words are spoken, along with some sound effects related to the picture. This is a great activity to use in the pre-school classroom, especially when doing a Letter-A-Week activity. Children can select another letter by pressing the on-screen arrow or the home button. The second game is played with two letters. Children choose the letters and then pictures beginning with the two



Marbotic: Smart Letters (www.marbotic.com)

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letters appear on screen. Children press the letters on the pictures, identifying the initial letter. Incorrect choices are ignored. This game can be played by one user, but can also be used as an interactive game with two users playing together, making it a powerful, interactive game to reinforce social skills and turn-taking, as well as letter learning.

Alphamonster, the second Smart Letters app, has many different alphabet activities. Some are errorless - place a letter to see the letter and hear the sound it makes, place in another area and see a picture of an object that starts with the letter, and place in third place to see a lower case and script letter. (Any of these can be turned off in the options controls). In another activity, a letter is presented on-screen and user stamps with the same letter. In another, a picture is presented and users need to select the correct beginning letter. After three incorrect responses, the correct letter is presented as a hint. In other activities, a lower case letter is presented and users match with upper case; a script letter is presented and users match with correct print letter. There is an additional activity that displays the alphabet and a picture for each letter. Children press the letter or picture and hear it spoken. Turn on the letter slide, and all the above activities can be played without the Smart Letters, letting the users drag the print letters from the on-screen alphabet display.

Bla Bla Box is the third Smart Letters app and lets users combine different letters to make words. The program spells them and reads them out. This app helps reinforce the sound-symbol relationship and can be used to reinforce sight words and word families. Creative teachers can find many ways to structure interactive activities with this app.

For all three of these apps, try making an alphabet display (with letters in alphabetical order) with all manipulatives - it helps the children find the letters, develop a left-right visual scanning pattern, and improves organizational skills. If you do this each time, before you know it, they will be attempting to do it themselves!

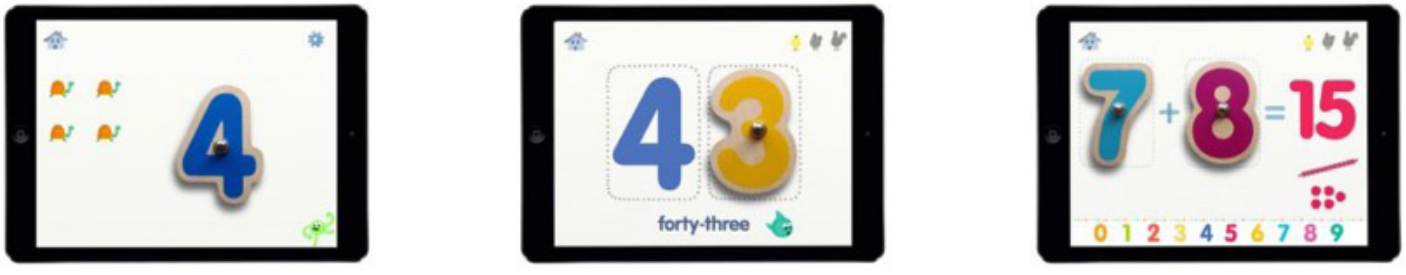
SMART NUMBERS (WWW.MARBOTIC.COM)

Similar to Smart Letters, Smart Numbers has 10 wooden numbers (0-9) that work with three interactive apps, on iPad2 and later, and with some Samsung and Nexus tablets. (See website for a complete list of tablets that work.) The Smart Numbers apps can be used in 16 languages. The currently available apps are:

10 Fingers has three number-math activities. In the first level, players can place any number on the screen, have it identified and see that number of small illustrations. They can also chose to touch the screen with any number of fingers to get the same result. The alternate mode of this activity presents the illustrations and children have to put the correct number or correct number of fingers on screen. Pictures are then counted out, showing 1-1 correspondence. Wrong answers are ignored. If children need help, they can touch each picture and the app will count out for them. The second activity is similar, except that it presents the numerals instead of pictures. The third activity is an open ended addition app. Showing the formula ____ + ___= _____ , users can place a numbers in place 1 and 2 and see the answer in place 3.

Up to 100 has two activities. In the first, users place one number in each of two boxes and the app names and writes out the number (i.e., 2 – 2--- twenty-two). In the next level, the app shows a number line with a number missing (31…33) and player selects the two numerals needed to fill in the blank. In the final level, the number is written (fifty-seven) and players have to select the correct digits. The second activity works on tens and ones concepts. A number in the first box shows how many tens and the number in the second box shows how many ones. There are also three levels in this app. The app has options to show the numbers in letters, to see the numerical bar, to see beads in color, to choose print or script, to turn on number display and to choose the range of numbers.

More or Less: Add and Subtract lets users select addition or subtraction. First level is errorless - pick the two numbers and see the sum or the remainder. Level 2 presents the equation with color coded beads under each number so the total can be counted. Level 3 shows the first number and what the equation equals. Players fill in the missing second number. Color coded beads can be moved to help solve. This is a well-designed and very visual presentation that can be very helpful in understanding basic addition and subtraction. Options allow users to see the number line, hide or show the beads, play with doubles in addition and show the interval of the result in addition and the interval of operands in subtraction.



Marbotic: Smart Numbers (www.marbotic.com)

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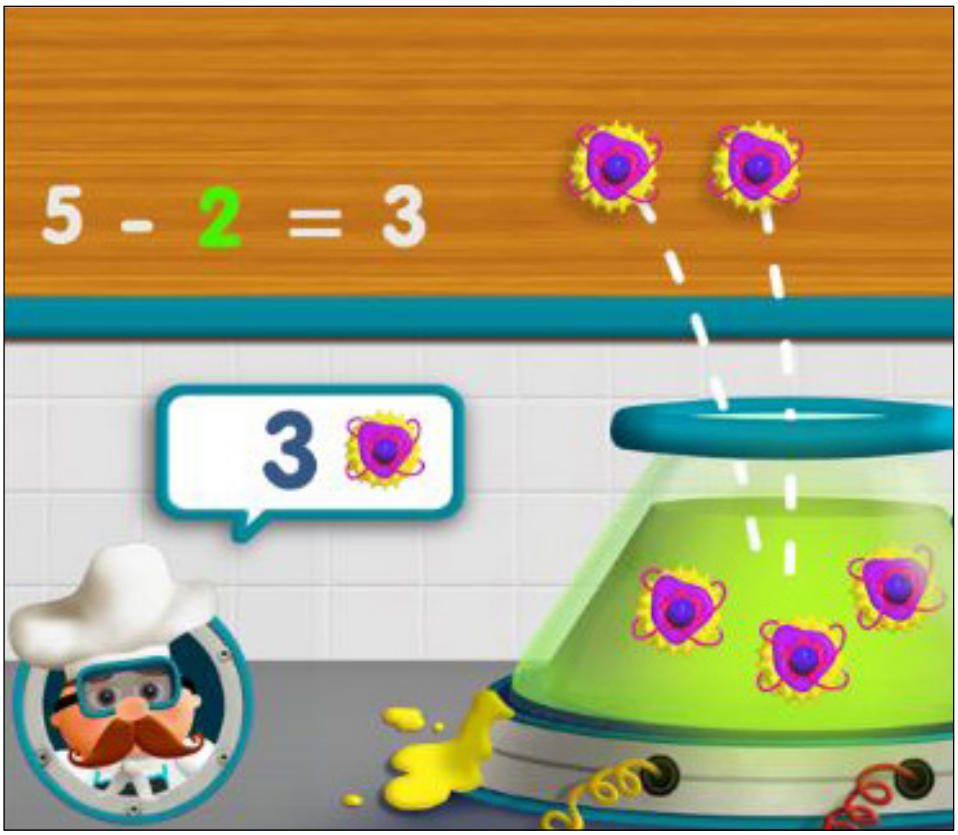

Tiggly: (www.tiggly.com)

Both Smart Letters and Smart Numbers are excellent choices if your children love the iPad at home and in school and you want to expand its learning potential and also use the technology interactively.

TIGGLY (WWW.TIGGLY.COM)

Tiggly has created three learning games, **Tiggly Shapes, Tiggly Math** and **Tiggly Words**, that have manipulatives that work along with a series of apps on the iPad 2, 3, 4, Air, iPad Mini and iPad Pro (Reviewed in detail in DISKoveries, August-September, 2015). The interactive pieces that go with the sets are 3-D objects that the iPad recognizes. The shapes (circle, square, triangle and star), counting pieces (five number strips: red with one square, yellow with two, green with three, blue with four and purple with five squares) and letters (a, e, i, o, and u) have silicone touch points so the tablet recognizes and reacts to them when they touch the screen. The free Tiggly apps can also be played in eight different languages (and without the manipulatives, if desired).

Tiggly Chef Subtraction: 1st Grade Math is the newest Tiggly app. A good companion to the original Tiggly Chef: Preschool Math, this app lets children explore subtraction by taking away the extra ingredients to get to the exact number needed for experiments. Children are encouraged to think flexibly about numbers and to arrive at the answers in many different ways. Mathematics symbols are explained and the game can be played either with or without the Tiggly number lines. It addition to challenges at increasingly higher levels of math difficulty, the app features three kitchen labs, with unique flavor bits and surprising dishes with funny names that will amuse the children, as well as 12 "experiment-gone-wrong reactions" and the ability to create your own concoctions.

Watch in the near future for a new set of math numbers that's going to be a common core system for Kindergarten and 1st grades.

If you aren't familiar with Tiggly Shapes, **Tiggly Math** and **Tiggly Words**, visit the website (www.tiggly.com) for more information and to see some videos of Tiggly in action. You can also download the free apps to try them out.

OSMO (WWW.PLAYOSMO.COM)

Osmo is an award-winning game system that has created new ways children can play, learn and interact with the iPad. Reviews of Osmo have appeared in DISKoveries in two previous articles. In August, 2015, DISKoveries reviewed the basic system and the first four games **Tangram**, **Words, Masterpiece** and **Newton**, and in April, 2016, it reviewed the **Numbers game**.

Osmo is a gaming accessory for the iPad version 2 or higher, iPad Mini and iPad Pro that is designed for ages five and up. (Currently, the iPad must be out of its protective case to work with Osmo.) The Osmo system comes with a reflective mirror for the iPad camera, a white iPad stand and sets of game pieces. The reflective mirror is a red attachable piece that lets the iPad see the environment below and in front of it and translates movements to the iPad.

Osmo Coding is the newest game. Code (or computer programs) are sets of precise instructions given to a computer to complete a task. Coding (or programming) is writing those step-by-step instructions in an exacting way so that the computer can follow them. These instructions must be broken down into small chunks so they are easy to follow and impossible to get wrong. Osmo Coding uses physical blocks to give instructions to a playful character named Awbie who loves strawberries and loves to explore his world, play games, jump on the trampoline, search for critters, explore islands and so much more. The coding blocks

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Osmo (www.playosmo.com)

have clear visual directions, such as walk, jump, grab; an arrow key that rotates to give spatial direction to go and numbers to indicate how many times. Another block can be used to repeat a whole string of instructions. This is an easy and clear way to visually introduce coding to children. Awbie's adventures contain many locations, critters, collectable items, missions, different levels and lots of fun and laughs. By trial and error, cognitive planning, problem solving and reasoning and thinking, users begin to see that their single instructions repeated over and over can be combined into more complex strings and sequences, with loops, conditionals, etc. Awbie's adventures are motivating and appealing to young children. Excellent for both independent and interactive play with others, once again reinforcing the power of the iPad as a learning and social tool.

For an excellent Smart Toy to use to introduce Coding to young children and those with special needs, see the **Code-a-pillar** review below in the Smart Toys section.

Hasbro Play-Doh Touch Shape to Life Studio (www.hasbro.com)

HASBRO PLAY-DOH TOUCH SHAPE TO LIFE STUDIO (WWW.HASBRO.COM)

Kids love their iPads and they love Play-Doh, too. Put them together and they have endless hours of creative fun with Hasbro new **Play-Doh Touch Shape to Life Studio**, for ages 3 and up. The Studio comes with seven Play-Doh canisters, each in a different color, five digital stamper characters, five actions stampers, a full set of cutters and tools, the Studio scanning station and a free app from the Apple App Store. Children start their adventure by making a character, either using the digital stamper characters or their own creations that they can make using the tools or by hand. There is no end to the kinds of fun characters they can make. Then they place their creation in the middle of the Studio scanning table, hold their iPad horizontally above and the iPad app scans it automatically once it focuses on it. The magic begins - their characters are imported into the app and brought to life. They interact with the program's many exciting worlds, and using their iPads, children can interact with them. Each character has its own unique voice and personality. The action molds can also be scanned, giving the characters powers to dance, spin, float, fly and multiply. (Hint: If you try the stampers in different colors, you get different effects. Try it!) This Hasbro Studio is about creativity and exploration - and can be played by children alone or working together in small groups. It opens up all kinds of opportuni-

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Sago Mini Playset - Jinja's House (www.sagomini.com)

ties to use language, to problem solve (i.e., how can we get a character to get to the top of the mountain?), to be socially interactive, to be creative and to have fun. It's an extraordinary example of how you can use technology to interact with objects in the environment. Well done, Hasbro … and happy 60th birthday Play-Doh.

SAGO MINI APPS AND THE SAGO MINI PLAYSET- JINJA'S HOUSE (WWW.SAGOMINI.COM)

Some of our most favorite apps for preschoolers are the Sago Mini apps for both iPad and Android, featuring friends, like Jinja, Robin, Harvey, Jack and others. In Sago Mini's well-designed and open-ended creative apps, preschool children explore their environment and in an errorless setting, build snow forts and drive trucks and diggers, use tools, learn numbers and shapes, go on musical journeys, dress up the babies and so much more, all with their Sago Mini friends. There are 22 Mini Sago apps, many of them free and the rest very low cost. They have no in-app purchases or advertising and once downloaded, do not need the Internet to play. If you are lucky enough to live in the Toronto, Ontario Canada area, your children ages 2-5 can visit the Sago studio and play-test the apps and toys.

Now, in addition to playing with their friends on the iPad, children can pick one of their Sago friends and play with them with their real friends off screen. **Sago Mini Playset - Jinja's House**, just one of three Playsets, features Jinja and her friend Rosie. (Playsets are designed for ages 3 and up and contain some small parts.) Jinja's little play house unfolds to reveal a kitchen, bathroom, bedroom, living room, entrance way and outside area. There's even some pizza and a back door with a mail slot! Jinja's furnishings include a bed, two chairs, cups, bowls, a slide, letters from the mailman and a ladder, in addition to the two characters. The house folds up tight and stores all the little friends and their possessions, and when folded up, even has a handle that makes it easy to carry around and bring everywhere. This is a wonderful new way to play with our friends from the iPad – and extend symbolic play into other situations. Great also for enhancing social skills and cooperative play, both at home or at school. Other playsets are **Harvey's SpaceShip** and **Jack's Diner**. Such a great idea and so well done!

FISHER-PRICE THINK & LEARN CODE-A-PILLAR (WWW.FISHER-PRICE.COM/THINKANDLEARN)

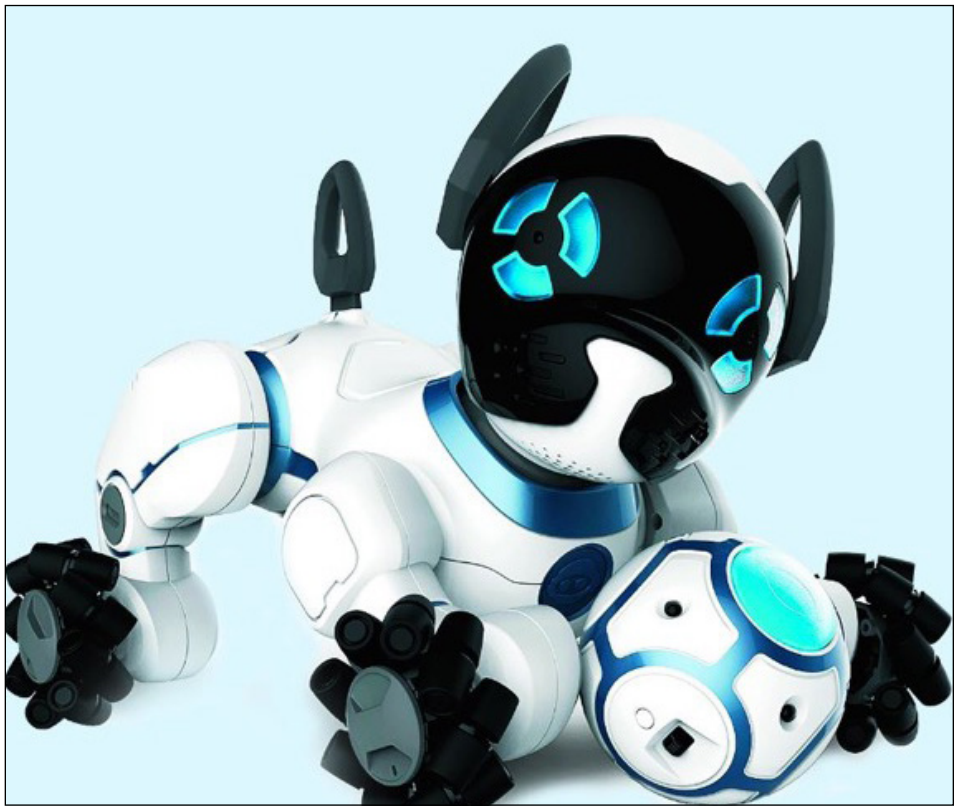
This is an amazing toy - designed for young children, but once you take it apart, put it together again and press the start button, you will see its wide application to a much wider range of ages and that it's appropriate as a toy for problem solving, critical and analytic thinking, interactive play and a beginning step in learning Coding. In a preschool or kindergarten classroom, this makes an interesting center for two to four children working together to send the Code-a-pillar on a trip - from errorless play to creating a set of directions, children will explore and learn in a non-threatening and rewarding environment.

The Code-a-pillar contains the head and control button segment and then there are eight additional segments. Each of these is marked with a color and signal light that tells you the direction it will take. There are three green arrow forward segments, two orange arrow left segments, two yellow arrow right segments and a music segment. Segments pull apart and snap together easily with USB-type connectors and there is no right or wrong order. Connect any way you like and press the button. The Code-a-pillar reviews its program (each segment lights up in turn) and then it begins its route. The segment being played flashes.

Fisher-Price Think & Learn Code-a-pillar (www.fish-erprice.com/thinkandlearn)

When it completes, it stops flashing and the next one begins flashing. You can use a few segments, all segments or add additional segments (up to 15) from three available expansion packs: **Basic** (has one forward, one 90 degree right turn and one 90 degree left turn); **Master Moves** (one 180 degree left turn, one 45 degree right turn and a Repeat segment [repeats the segment before it, 1, 2, 3, 4or 5 times, depending on the number you choose]); and **Silly Sounds & Light** (one Sleepy ZZZs [soft sounds and light], one Wacky [silly sounds and lights] and one Happy [upbeat music and lights]).

There are lots of suggestions to encourage children to play creatively, as well as learn. First step for the youngest learners is just pressing the button to start the Code-a-pillar on its journey. Then, they can learn to pull apart and put together the pieces - in any order they want. Children have full control. As they do this, they will observe (and can be taught to observe) the differences in the routes. Did it go straight? Did it turn? How far did it go? Then they will begin to observe the visual directions on each segment and begin to understand its symbolic meaning. As they rearrange and program different combinations, they can learn to plan and sequence a path, and learn to get wherever they want - from start to finish, under a table, around a chair, on and on. And as they do this, they develop problem solving skills, critical and analytical thinking, sequencing, beginning coding and more, playing alone or together with others. There is also a free Code-a-pillar app - **Think & Learn Code-a-pillar**, available on the Apple App Store and on Google Play. This app contains maze and number coding games featuring a digital Code-a-pillar, and containing drag and drop command segments, along with rewards, sound effects and animations. Content levels up as you play, with each level introducing and reinforcing a new concept. The app lays out a path in front of the Code-a-pillar and players drag and drop command segments to guide him. Press his head (just like the Smart Toy)



CHIP (Wowwee: www.wowee.com)

and he will try it out, and if he gets stuck, players are guided with helpful explanations. The more they play, the more they learn!!

CHIP (WWW.WOWWEE.COM)

CHiP is an interactive robotic dog that responds to the environment and to those around it - with sound, movement and action. With advanced sensors and smart accessories, CHiP stays aware and ready to play. CHiP can sense the surroundings and know where certain things are in relation to itself. When its battery is running low, CHiP flashes eyes, barks and heads out to find its SmartBed. It backs itself up and positions just right so that it gets recharged and ready to go in a short time. CHiP can respond to gesture-based interactions, like swipes, claps, touch and more. Bluetooth Low Energy and InfraRed Vision allow it to connect to and interact with the other included smart devices - a ball that it can fetch and play soccer with, the SmartBed and the SmartBand (watch-like device). Capacitive sensor technology enables CHiP to respond to touch (swipes, pats, pets, pokes, spins, lifts, etc.), and speech recognition technology enables it to respond to its name and a list of commands. CHiP also connects with an app from the Apple Store and Google Play Store that provides additional control and gameplay. CHiP is about 11 inches long and 9 inches high, with a friendly robotic look. Eyes flash different colors providing feedback to the user. It moves easily across different floor textures (carpet, wood, stone, etc.). Children can pet CHiP and CHiP will lie down and get excited. They can tap CHiP on the nose and CHiP will lick their hand, tap CHiP's head to make it sit or lie down or stand up. They can even annoy CHiP and watch the reaction. Using voice commands, they can tell CHiP to sit, dance, play, fetch, do yoga or play soccer, and CHiP will do as told. Just saying "Hey CHiP" gets its eyes flashing and CHiP barking. Using the SmartBand, they can press command icons to get CHiP

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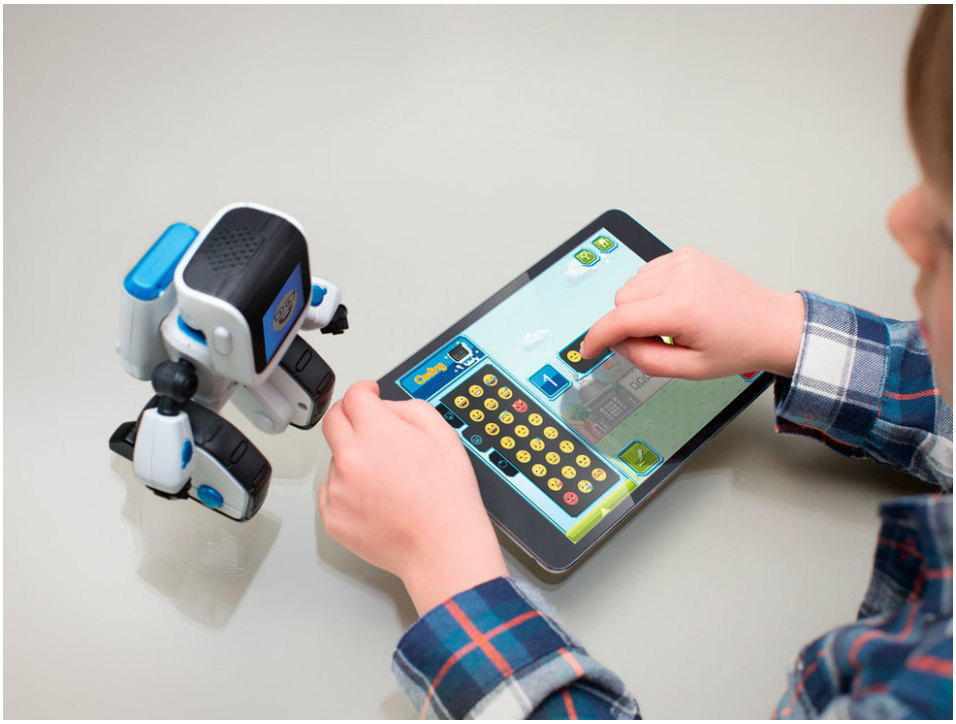

Coji (Wowwee: www.wowee.com)

to follow these and other commands. CHiP will also follow you around if you are wearing the SmartBand and it is set to Follow mode. The CHiP app gives the user even more control. They can rename their pet, use a remote control, have CHiP do tricks and give it virtual treats. Updates are frequent and new functions are continuously being added. All iPhone and iPad devices (except for the original iPad and iPad2) with iOS 9 or higher will work with CHiP. For Android devices, most Bluetooth Smart Ready devices running Android 4.4.4 (KitKat) or later should work. The easiest way to check compatibility before buying is to attempt to download the CHiP app. If your device is not compatible, Google Play will not let you download or install the app. Try watching some of the excellent training videos on the website to get a sense of how much fun and how interactive CHiP can be.

COJI (WWW.WOWWEE.COM)

Coji is a Smart Toy designed, for young children, to introduce the idea of a robot and some very simple coding concepts. It works with iOS 9 or later (iPhone, iPad, iPod Touch) and with Android 4.4.4 or later. Coji is about 5 1/2 inches high, has a lit screen that is about 1-inch by 1 1/4-inches, two buttons to control the display, two arms that move up and down and rollers that allow it to move forward and back. On the easiest level, users can push the forward and back buttons to cycle through the emoji display and see 21 different symbols (some emojis, some animals and some other things, such as Santa, school bus, etc.). When one is selected, children press the head to activate, and the response from Coji is a visual and auditory response (i.e., happy emoji has a little laugh and Coji spins around in a circle). There are five numbers that can be programmed by the child to create sequences that Coji will follow (i.e., move forward, music, move backward, happy face). This will be something they will learn to do as they explore the included free app, which is available on both the Apple App Store and Google Play Store. The app contains a group of games, some that can be played with the tablet or the iPhone without Coji and others are used together with Coji. These activities include Free Play, where children send commands or emojis to Coji and he will follow directions or respond with sounds and movements. There is a memory game where Coji sends a single emoji/picture or a sequence and the child recalls and repeats the sequence on the tablet. Like a game of Simon, the sequence length continues to increase and becomes more complex. There are also some maze games that work without Coji. In these, children direct virtual Coji through a maze, using coding symbols, such as move forward, move left, move right, etc. As with the other games, there are several levels with increasingly complex tasks. Coji responds happily as each task is completed successfully. The Command Center in the app is the area that lets you create sequences and save them so that Coji will perform them any time you want. There is also a Drive Mode that turns the phone or tablet into a remote control that can be used to move Coji around the room. Good vision and good fine motor skills are needed to control Coji. This is a fun toy for young children, while at the same time, teaching them some beginning concepts needed to learn about coding.

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Supporting Learners with Dyslexia:

Technology and Intervention CAN Play Nice!

You know these learners; you work with them every single day. The kindergartener who slightly mispronounces words and has a difficult time acquiring sound and symbol (letter) correspondence. The quiet third-grader who works hard, completes all of his or her assignments, but just cannot seem to read single-syllable words (e.g., cat, dog, bug) fluently. The brilliant ninth-grader who excels at art and music, yet struggles to effectively and efficiently sound out novel words, making higher level curriculum difficult and frustrating to access. The twelfth-grade, stellar athlete who has difficulty completing reading and writing assignments, but is an intelligent and valuable participant during classroom discussions.

Each of these students struggles. The root cause may not be immediately known, but an educator or family member, acutely aware of their struggles, may refer them to special education - the sooner the better. These students endure hours of psychological and educational testing, perhaps more if other areas are impacted (i.e., speech and language, occupational therapy, behavior). When testing is complete, the team (including the parents or caregivers and student, if appropriate) gathers around a table to discuss the evaluation results. When testing is reviewed, it often becomes apparent that reading skills are impacted.

After reviewing eligibility criteria to determine the appropriate educational disability, the meeting may become more complex. It is at this point that many students who experience challenges with reading qualify for a "specific learning disability" (SLD) in one or more sub areas, such as basic reading skills, reading com-

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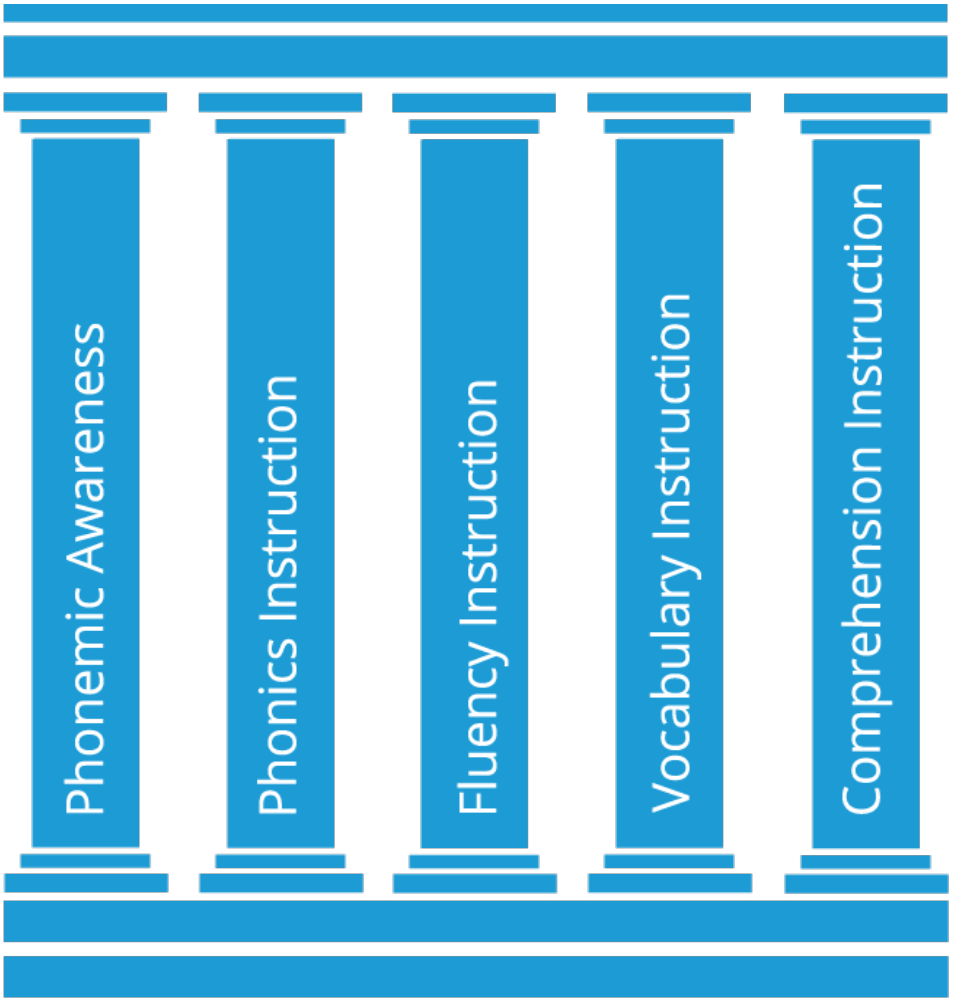
prehension and oral expression. Unfortunately for many families and educators, this can be a vague label for something more specific. Sometimes, this leaves families and educators with more questions than answers about how to move forward. Some of these students coded with SLD continue with outside or additional testing in the hopes of a more concrete answer. In the end, a percentage of these students - approximately 10% of the population as a whole - experience dyslexia (NCES, 2015).

WHAT IS DYSLEXIA?

Dyslexia is a neurobiological learning disability. Individuals with dyslexia may have difficulties with recognizing words accurately and fluently, decoding (sounding out novel words effectively and efficiently) and encoding (spelling) in the absence of a cognitive or intellectual disability. Individuals who have difficulty with lower order skills, such as decoding and encoding, may also experience challenges with higher order skills, such as reading comprehension and vocabulary growth due to less effective and efficient basic reading skills (IDA, 2002).

Multiple difficulties with lower order reading skills have led researchers to consider a single, double or triple deficit hypothesis to better understand dyslexia and its impact on individuals who struggle to read. Three main areas have been found challenging for individuals with dyslexia: (1) phonological processing (manipulating sounds in words), (2) rapid naming (how quickly an individuals can name aloud items such as pictures, colors, letters and numbers) and (3) orthographic processing (efficient sound/symbol understanding with which individuals rely on to spell accurately). Although these areas may be impacted, there is a lack of clarity, due to limited research, regarding whether or not these three distinct deficits occur separately as a "type" of dyslexia or in combination with one another as one "dyslexia" diagnosis (Vukovic and Siegel, 2006).

Regardless of this debate, the evaluation process is meant to provide an understanding of an individual's area(s) of need. This, in turn, aids in establishing a roadmap to addressing these deficits with targeted literacy instruction. In 2000, the National Reading Panel reported on pertinent information specific to targeted literacy instruction, which is still relevant in classrooms today.



Five Pillars

THE NATIONAL READING PANEL REPORT

The National Reading Panel (2000) developed a comprehensive report outlining the need for explicit, systematic and multisensory instruction when providing reading intervention. This report focused on reading instruction for all learners, not just specifically learners with learning disabilities, such as dyslexia. Five areas were identified as crucial to beginning reading:

1. Phonemic Awareness: The ability to manipulate phonemes (smallest units of spoken language) in words directly correlates with success in reading and spelling.
2. Phonics Instruction: Early systematic instruction in connecting sounds to letters (phonics) has strong positive correlations in an individual's ability to accurately and efficiently decode, spell and comprehend text.
3. Fluency Instruction: Fluid and efficient oral reading has a significant and positive impact on word recognition and comprehension.
4. Vocabulary Instruction: With appropriate and varied instructional meth-

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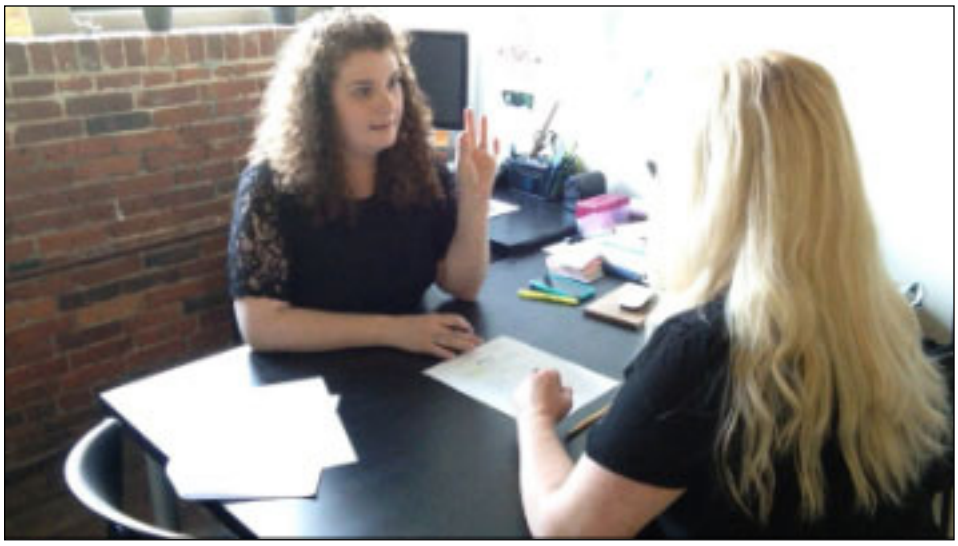
ods based on a learner's age and ability, direct and indirect vocabulary instruction across multiple contexts is found to improve reading comprehension.

5. Comprehension Instruction: Teaching a combination of reading comprehension techniques is critical to a learner's skill development in analyzing and making sense of text across a variety of genres (i.e., expository, narrative).

In addition to outlining the need for specific instruction in reading, the report discusses the importance of quality teacher preparation programs. Many preservice teachers receive most of their reading instruction training during internships, externships and by attending classes focused on theory and pedagogy. It is expected that regular education teachers are prepared to instruct reading. Often, it is special educators or service providers who receive more targeted training in the area of literacy. However, this training may not be as robust or provide enough understanding about best practice, leaving teachers and providers underprepared and lacking confidence in their ability to provide comprehensive reading instruction in or out of the classroom. In many public schools, "boxed" literacy programs are implemented as a way to streamline reading instruction. This approach has been found to hinder teacher creativity and student stimulation in the classroom setting, not to mention disregard for personalizing learning to meet specific learner needs. Reading is not a "one size fits all approach." Not all boxed programs provide a sensical scope and sequence for introducing new reading concepts to learners. Even more worrisome, essential components of a comprehensive literacy plan are addressed in passing, or worst of all, omitted entirely. This leaves learners on their own to fill in the blanks, often widening the gap in skill level between students with and without dyslexia.



WHAT ARE THE COMPONENTS OF A COMPREHENSIVE LITERACY PLAN?

Based on findings from the National Reading Panel's report, in conjunction with the Orton-Gillingham philosophy for instructing reading, many well-researched intervention programs provide a systematic, explicit and cumulative approach (Gillingham & Stillman, 2004). A few of these intervention programs are outlined in the "Technology Tools Intervention Matrix" listed under the "Resources" section at the end of this article. Again, despite being well-researched, it is always crucial to personalize learning to the specific learner, meaning a "one size fits all" approach may not work. Resources may be required from multiple programs to create a comprehensive and prescribed lesson for learners, all based on their specific needs.

Systematic, explicit and cumulative approaches reading instruction are most effective when provided in hour-long, one-on-one sessions multiple times per week (Gillingham & Stillman, 2004 and IDA, 2002). It is important to understand the pace and organization of tasks in a complete lesson, as this will help when considering the best technology to integrate when the time comes. Lessons are organized specifically to target one new concept at a time from the sound/symbol level all the way through practicing the concept in connected text, all while embedding a review of a previous concept. Creating a comprehensive and targeted lesson plan takes effort and skill. With appropriate training, understanding a learner's needs and the appropriate intervention to support them becomes more intuitive to navigate. There are approximately 10 steps involved in a single, hour-long lesson plan, executed in a specific order that supports the review of old concepts, as well as the integration of new concepts. Below, each step is outlined in the order in which they appear within a lesson plan and are accompanied by both a visual and link to a video for further information.

VIDEO 1 - PHONOGRAM DRILL (2 MINUTES)

The phonogram drill begins a lesson. It should be relatively quick and incorporate sound/symbol (letter) concepts only. Most importantly, only sound/symbol concepts previously introduced should be included. A critical component of this task is to incorporate multisensory supports (e.g., sand, glitter pads, gel pads). http://bit.ly/phonogram-blending

VIDEO 2 - BLENDING DRILL (3 MINUTES)

The blending drill uses the review cards from the phonogram drill. Cards are flipped to make nonsense words for the learner to sound out. The instructor may draw attention to difficult concepts, such as vowel sounds or the difference

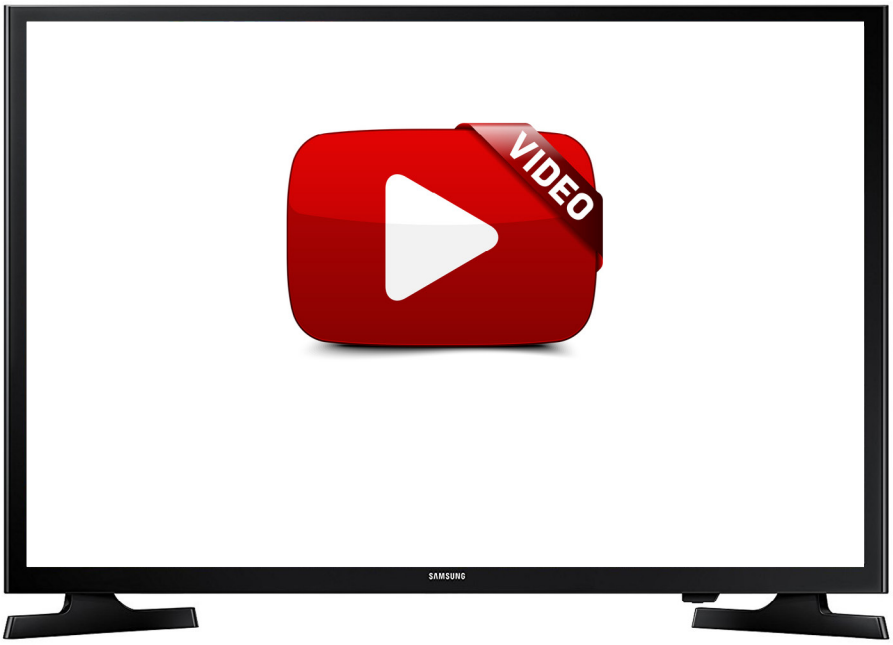
between digraphs (two letters that come together and make one sound - ck, th, sh, wh, qu) and blends (letters that come together and retain their sounds - fl, br, spr, etc.). By drawing attention to concepts known to be difficult, learners will engage in errorless practice and learning.

ALSO VIDEO 2 - REVIEW WORDS AND CONCEPTS (3 MINUTES)

Review words focus on up to three review concepts. This section is comprised of a list of between 15 to 20 words, each one including one or more concepts identified as challenging for the learner. These are concepts previously taught, but may require additional focus. At this point, no new or unknown concepts should be included. Students read through these words three times. The first time is to review the words and provide guided corrections to any errors. The final two read-throughs are focused on fluency and, most often, are timed. http://bit.ly/review-words

VIDEO 3 - SIGHT WORDS (3 MINUTES)

Similar to review words, this section of the lesson plan should have a list of sight words, also known as "high frequency" words, (15 to 30) read through three times with the first focused on error correction and the remaining focused on fluency. The Fry and/or Dolch word lists are frequently referenced for this section. These comprehensive lists outline the most commonly used English words, ranked in order of frequency.
http://bit.ly/sight-learned-words



Video 1 - Phonogram Drill (2 minutes) (http://bit.ly/phonogram-blending)

Video 2 - Blending Drill (3 minutes) (http://bit.ly/review-words)

VIDEO 4 - GUIDED DISCOVERY INTRODUCTION OF A NEW CONCEPT (7 MINUTES)

Guided discovery carries the weight of a lesson. This task is critical because it requires comfort with the subject matter on the part of the instructor, as well as a plan to guide the learner through previously mastered concepts in order to make connections and discover the new concept. This can be challenging because the instructor has to allow the learner to use prior knowledge to make these connections without explicitly telling them the new concept. This process creates a meaningful learning experience and builds strong neural connections to support the application of the new concept when reading (Shaywitz, 2003).
http://bit.ly/guided-discovery

VIDEO 5 - NEW WORDS AND CONCEPTS (3 MINUTES)

In order to practice the new concept, 15 new words, using only the new concept and previously learned concepts, are included in a list. The learner reads through the list once for practice, followed by two additional reads timed for fluency.
http://bit.ly/new-words-concept

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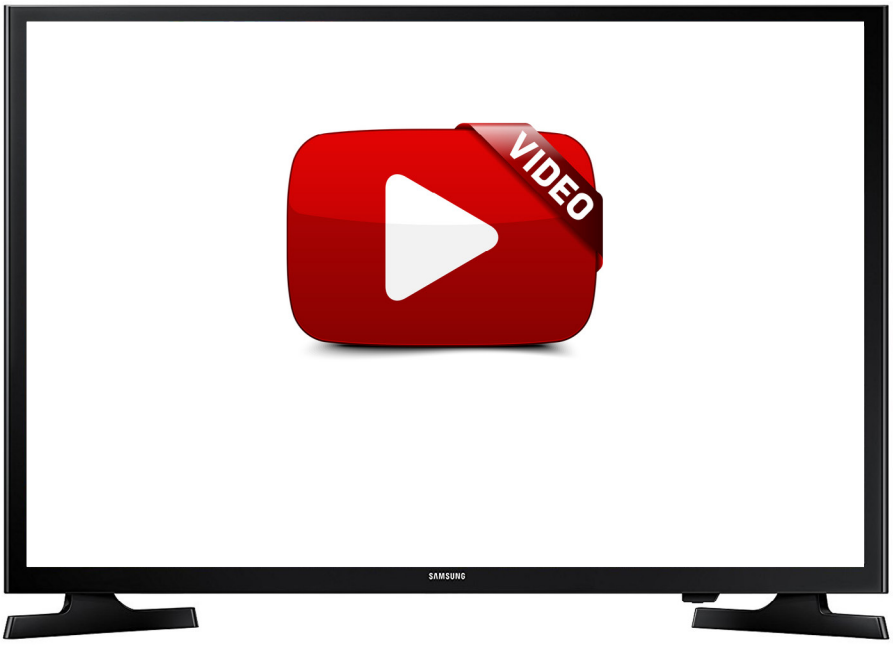

Video 3 - Sight Words (3 minutes) (bit.ly/sight-learned-words)

Video 4 - Guided Discovery Introduction of a New Concept (7 minutes) (http://bit.ly/guided-discovery)

SENTENCE READING (3 MINUTES)

Sentence reading is an integral part of a lesson. This allows the learner to practice the new concept in connected text. Typically, at least five sentences are included. Similar to other sections, the first read through focuses on remediation, while the remaining two reads focus on fluency. At this point, the student can also practice chunking sentences into phrases with natural pauses to practice the rhythm of reading, as well.

VIDEO 6 - PHONEMIC/ MORPHOLOGICAL AWARENESS TASK (3 MINUTES)

Phonemic and morphological awareness are important skills to the reading process. Often, phonemic awareness is a deficit area for individuals with dyslexia and requires explicit and repeated instruction to remediate. Phonemic awareness tasks target the ability to acknowledge each sound in a word, as well as manipulate sounds in words. At this stage in the lesson, tasks do not include printed text but, instead, rely on the sound system only. Thus, depending on a learner's needs, they may be working on basic rhyming tasks or on higher level manipulation of prefixes, root words and suffixes. http://bit.ly/phonemic-morphological-awareness

VIDEO 7 - SPELLING AT SOUND/ SYMBOL, WORD AND SENTENCE LEVELS (15 MINUTES)

Literacy instruction provides the foundation for individuals to learn how to read. The importance of spelling and writing, however, cannot be overlooked. Reading and writing are inextricably linked. Both reading and writing rely on similar foundational skills, such as a solid phonological system. Writing also relies on orthographic knowledge, or the ability to connect a sound to the formation of its correct corresponding letter in an efficient way. Thus, when working to establish a comprehensive lesson plan, spelling cannot be left out. Receptive (reading) and expressive (writing) tasks must be worked on in the same lesson, with an emphasis placed on learning to use the new concept in written form. This supports the learner's understanding of not only how to read the new concept in text, but also how to apply it while writing. http://bit.ly/encoding-writing

VIDEO 8 - CONTROLLED PASSAGE READING AND COMPREHENSION (15 MINUTES)

The last major task in a lesson is repeated reads of a controlled passage. A

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controlled passage includes only previously taught concepts, as well as an emphasis on the new concept. In the interest of building fluency with old and new concepts, there should be no more than five words with novel concepts within the passage. This will decrease the frustration level and build a successful experience for the learner, with the focus being fluent and fluid reading. The first read through focuses on error remediation, while the remaining two reads are timed for fluency. Asking thoughtful questions regarding the controlled passage post-read is one way to check basic reading comprehension. Asking these questions is important because the purpose of learning to read is to intake and synthesize new information and ideas, not only decoding words. http://bit.ly/controlled-read

At the completion of a full lesson, any remaining time can be spent reading from a learner's preferred book, perhaps alternating shared reading responsibilities, page by page. Data collected from error analysis and fluency timing, as well as any additional notes taken, can aid in assessing whether a learner can move on to a new concept or spend another lesson working on the current concept. These lessons should be prescribed specific to a learner's personal needs. The explicit and systematic nature of these lessons is to build, or in some cases, rebuild, a shaky foundation into a strong platform from which learners can confidently launch into the world of skilled, and enjoyable, reading!

Video 5 - New Words and Concepts (3 minutes) http://bit.ly/new-words-concept

Video 6 - Phonemic/Morphological Awareness Task (3 minutes) (http://bit.ly/phonemic-morphological-awareness)

WHERE DOES TECHNOLOGY FIT IN?

The integration of technology into literacy intervention can support a learner's experience by providing increased engagement and novel kinesthetic input. Some instructors and interventionists stray away from technology to supplement instruction or intervention because they view it as a game or worry it may end up being a "crutch." Others may simply not have enough background knowledge with respect to language and reading development to understand the importance of explicit and systematic instruction. In either case, the use of technology should not be a game or a "crutch" for learners. It should serve a specific purpose to supplement instruction and/or intervention. Technology, by no means, replaces the importance of skill acquisition. However, critiquing technology to better understand its usefulness to instruction, as well as its limitations, is integral to a successful experience for both instruction and learning. Consider the following questions when evaluating a technology tool:

1. What is the concept for the lesson?
2. Does the technology being considered embed this concept into the activities introduced with plen-

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Video 7 - Spelling at Sound/Symbol, Word and Sentence Levels (15 minutes http://bit.ly/encoding-writing

Video 8 - Controlled Passage Reading and Comprehension (15 minutes) http://bit.ly/controlled-read

ty of opportunities for practice? Does the technology pronounce sound/symbol correctly with regards to what the learner has been taught?

3. For example, some technology is created in other countries where accents may impact the sound of a letter or series of letters (such as vowel sounds).
4. Another example may be introducing the concept of vowel team "ea". This can say /ee/ (bead) or /eh/ (tread). Does the technology have flexibility to specifically manipulate the focus of how letters appear in words with respect to their sound?
5. Pay attention to the scope and sequence of the technology activity. Does it include only review and new concepts?
6. Does the learner have opportunities to practice skills receptively (in reading) and expressively (in writing), as necessary?
7. Can specific word or phrase lists be created to be used within activities presented?
8. Does the application collect useful or meaningful data regarding a learner's progress?
9. Can the learner use the technology independently or will they need support and/or supervision?
10. If they need supervision, what skill level with regards to reading does the support personnel need to know to ensure a positive educational experience?

In addition to technology that supplements skill acquisition, individuals may benefit from using speech-to-text and text-to-speech software to effectively and efficiently participate in classroom tasks and assignments. Some educators may question the use of audio books or text-to-speech software for individuals who are learning to read, however, it is important to allow individuals access to grade level (or above) text to encourage continued vocabulary and language growth. Many educators are unaware of federal laws that protect individuals with disabilities and their rights to accessible educational materials (AEM), such as audio books. Additionally, this technology bridges gaps by supporting access to the same content and curriculum as their peers, which aids in reducing frustration and prevents learners from falling behind in classwork. Technology tools can also support independence with writing. If individuals do not have access to these skills, their language development may be significantly hindered, thus negatively impacting higher order skills, such as reading comprehension, idea synthesis and conversational discourse. These are necessary skills when considering successful transition from secondary edu-

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cation to higher education and/or future employment.

Learning to evaluate the usefulness of technology to support skill acquisition and access to the curriculum is not always easy. Sometimes it can be a bit of a nightmare, as no one technology tool does it all! Practice playing with a variety of tools, learning strengths and limitations by reviewing the questions outlined above, and integrating appropriate tools into practice becomes easier over time, as well as adds a dynamic layer to instruction. It can be difficult to have skill and knowledge in all specialty areas, which speaks to the importance of contacting a qualified assistive technology professional in the absence of an educator knowledgeable about using, training and integrating technology tools with students, families and staff. Building a bridge between technology and intervention creates a lasting relationship that is significant to learner success!

RESOURCES

The following resources provide access to additional supports for instructors, family members and/or individuals with dyslexia. The "Technology and Intervention Matrix" below outlines an exhaustive list of tools (applications, software, intervention programs, websites and more) to use when putting together literacy intervention plans.

- International Dyslexia Association
- Evaluating Professionals Fact Sheet
- National Center for Learning Disabilities
- National Reading Panel Report (2000)
- Individuals with Disabilities Education Act
- AT for Education, LLC Events and Trainings
- Technology Tools Intervention Matrix
- Accessible Educational Materials - CAST
- Fry Words
- Dolch Words

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App / Developer	Addresses this Need/Accommodation	iOS as of 6/1/16	Google as of 6/1/16	Comments/ Features
Voice Dream Reader/Voice Dream LLC	Access to Grade Level Text & Vocabulary, Text to Speech/Audio Comprehension, Fluency, Decoding. AEM. Multi-sensory.	$9.99 Also Android	N/A	Connect to Bookshare, Google Drive & Dropbox, Access to Textbooks, Handouts, Learning Materials. Custom Fonts, Colors, Text to Speech, Highlighting, Significant Reading Support.
ClaroPDF Pro	Access to Handouts/ speech, annotation, Worksheets, text to written expression support, comprehension, multi-sensory.	$6.99	N/A	Connect to Google Drive or Take Photo and OCR, text to speech, highlighting, type with word prediction, dictate, hand write with stylus.
Notability By Ginger Labs	Working Memory, Notes with synced audio, retention, repetition, independence, comprehension, processing, multi-sensory.	$5.99	N/A	Color Coding, Audio Recording with time stamp, Add pictures and text, add links.

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AudioNote - Notepad and Voice Recorder By Luminant Software, Inc	Working Memory, Notes with synced audio, retention, repetition, independence, comprehension, processing. Simple interface, multi-sensory.	$4.99	$4.99	Audio recording with time stamp, add pictures and text, also available on Windows & Mac.
Microsoft OneNote	Working Memory, audio sync to lectures, independent notetaking, retention, processing.	Free	Free	Color Coding, Audio Recording with time stamp, iWatch compatible, Add pictures and text
Notes (Standard iOS)	Working Memory	Free	N/A	Syncs across devices, Built into iOS devices.
CanPlan By University of Victoria	Working Memory, Task completion, sequencing of events, audio and video, multi-sensory.	Free	N/A	in app purchase $14.99, Text, Audio, Pictures, Video, Add reminders
Math Paper/ Panther Math	Access to Math and Math Symbol Support, Written expression.	$19.99	N/A	Complete Math assignments using math symbols to type answers, align work, use correct numbber formation.
Simplex Spelling Phonics	Spelling, Phonics, Sight Words, Practice, multi-sensory, word rules	$4.99	N/A	A powerful combination of phonics lessons, spelling/word patterns, unique "reverse phonics" approach and contextually relevant spelling rules. Teaches a full year of spelling curriculum with over 450 high frequency words divided into 42 lists that are organized by spelling patterns and difficulty levels
Ginger Grammar Support	Grammar Support, Spelling correction and sentence rephrasing.Text to Speech.	$3.99	N/A	Grammar Support, Spelling correction and sentence rephrasing.Text to Speech.
Read and Write for iPad	Word Prediction keyboard, color coded vowels, Open Dyslexic Font, text to speech, spell check, dictionary.	Free to try, Premium is $19.99	N/A	Word Prediction keyboard, color coded vowels, Open Dyslexic Font, text to speech, spell check, dictionary.Works wherever the typical keyboard works.
Letter School	Letter Formation, phonics, multi-sensory, lights and sounds.	$4.99	N/A	Play to learn how to write all letters of the alphabet: abc - xyz and the numbers 1-10 with LetterSchool. Kids practice essential skills as they play four exciting games per letter or number.
Writing Wizard	Letter Formation, phonics, multi-sensory, lights and sounds, track writing progress.	$4.99	N/A	Learn how to trace letters, numbers and words through a fun system carefully designed to maintain motivation. Track writing practice.
Speech Flip Book by Tactus Therapy	Reading, Articulation, Apraxia	$7.99	N/A	Single-syllable, decodable flip chart. Can target specific letters/sounds.

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OG Card Deck - Mayerson Academy	Reading	Free	N/A	Electronic card deck for phonogram drill. Video clips to show how the sound is made are available.
Sound Literacy	Reading, Phonemic Awareness	$9.99	N/A	Instructional tool that targets basic reading skills including phonemic awareness, phonological processing, and morphemic word building.
Lotus Bud By Chad Sager	Task Initiation, Mindfulness, Awareness	Free	N/A	Random bell alarm for attention/ awareness.
FTVS HD - First Then Visual Schedule HD By Good Karma Applications, Inc	Task Initiation, scheduling, reminders, sequencing, visual schedule.	$14.99	N/A	Printable, Text, Audio, Pictures,Video, Picture library, Share.
Reminders, Calendar, Alarm and Voice Reminder - Aida Reminder by Sergio Licea	Self Monitoring	Free / $0.99	N/A	Voice Reminders, Nag feature
Alarmed ~ Reminders + Timers By Yoctoville	Self Monitoring	Free / $4.99	N/A	Nag feature, completely customizable. Preset and flexible times, adjustable text size
myHomework Student Planner by Rodrigo Neri	Planning and Prioritizing	Free	Free	In app purchases, planner with reminders
inClass By inclass Inc.	Planning and Prioritizing	Free	N/A	Video, audio and photo notes
DropTask HD - Visual To-Do List by Think Productivity	Planning and Prioritizing	Free	Free	Organization via visual map, collaboration
Popplet By Notion	Organization, mindmapping, brainstorming	Free / $4.99	N/A	Simple layout, Color coding, can export
Due By Due Apps LL P	Organization, Reminders	$4.99	N/A	iWatch compatible, Nag feature, Reminders for Your reminders!
Inspiration Maps By Inspiration Software Inc.	Organization, Mind-Mapping	$9.99	N/A	Color coding, visual mapping, picture library
Picture Scheduler By Petr Jankuj	Working Memory	$2.99	N/A	Text, Audio, Pictures, Video, Add reminder, not updated recently
Tools4Students by Mobile Learning Services.	Planning, Organization, Brainstorming, Graphic Organizers .	$0.99	N/A	25 graphic organizers supporting common comprehension skills like main idea and detail, sequencing, compare & contrast etc. (Also check out Tools4Students 2; 25 more graphic organizers and a blank template to design your own)
My Homework	Time Management, Planning, Organization	Free	Free	Digital Planner/ Agenda, scheduling, reminders, time management
Errands To-Do-List	Task Management, Working Memory, Planning	Free	N/A	Folders, Checklists, Task Images, Scheduling & Repeating, Alerts (alarms), Automatic Badge Updating, Calendar View, Mail Tasks, Multiple View Modes, Search

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The following are Chrome Extensions.		Will not run on an iDevice		All Chrome Extensions are Found in the Chrome Web Store. They can only run on the Chrome Browser Use on laptop, desktop, Chromebook, Surface Pro, Windows Tablet Many FREE options, Search by feature or Subject
Read and Write for Google	Text to Speech, access to research material and grade level text, highlighting and study skills, dictionary, organization, speech input/ dictation, word prediction		Free for 30 days, Free unlimited for school staff & professionals, $99/yr per student or group subscriptions	Text to Speech, access to research material and grade level text, highlighting and study skills, dictionary, organization, speech input/ dictation, word prediction, OCR and access to worksheets/ handouts and inaccessible texts or PDF's
Grammarly	Grammar, punctuation and spelling support, written expression	N/A	Free	Grammar, punctuation and spelling support, written expression
Visor	Tracking, screen masking	N/A	Free	Color adjustable and size adjustable tracking while reading online or in a doc.
Session Buddy	Organization, Memory, Research	N/A	Free	This is a Chrome extension, found in the Chrome Web Store. Save all open tabs by topic to get back to later.
Connected Mind	Mind Mapping, Planning, Organization	Free	Free	Mind Mapping, Brainstorming, Color Coded Shapes or Use Images, cloud storage
LucidChart for Education	Organization, Planning, Memory, Graphic Organizers	Free	Free Then subscription	Hundreds of Templates and Examples: - Flowcharts - Venn Diagrams - Graphic Organizers - Mind Maps - Org Charts
To Do List	Planning, Memory, simple lists, time management	N/A	Free	Easy, Simple, To Do Lists- Plan Today, Tomorrow, This week, This month, etc.
Strict Workflow	Focus, Time on Task, Productivity, Attention	N/A	Free	Enforces a 25min/5min workflow: 25 minutes of distraction-free work, followed by 5 minutes of break. Repeat as necessary.
One-Click Timer	Time on Task, Focus, Productivity	N/A	Free	Large, red, visual and audio timer. Up to 60 minutes. Also check out Progress Bar timer and other timer options in the Chrome web store.
Readability	Focus, Time on Task, Working Memory	N/A	Free	" Read Now" to disable surrounding webpage noise and clutter, get rid of distracting videos and ads • "Read Later" to save content to your personal reading list • "Send to Kindle" to send any web page to your Kindle in a comfortable reading view • Configurable content appearance: font color and size

Free Web Resources **Cold Turkey Self-Control (Mac)**	Free with subscription options offered. Distraction Free web browsing, research support, focus, attention, time on task.	Free	Free	All Browsers

Multisensory/ Phonics-based Literacy Programs & Resources	Features & Targets	Cost	General Information
Wilson Language Training	Phonemic awareness, decoding, word study, sight word recognition, spelling, fluency, vocabulary, oral language, comprehension	Full kits can range between $500 - $1,700.00	Various programs appropriate for K-adult
Spire by Sheila Clark-Edmands	Phonological awareness, word building, decoding (sentences and passages), encoding (sounds, words, sentences)	Full set about $1,900.00	Systematic, sequentially structured 10-Step Lessons ensures mastery of concepts in the five critical areas of reading. Consistent structure allows for easy implementation. Grades Pre-K-8 primarily.
Explode the Code **Explode the Code online**	Phonological awareness, decoding, vocabulary, comprehension, fluency, spelling	Materials cost between $10-$70 per student. Online, yearly version available at separate cost.	Pre-literacy workbook series that teaches the 21 consonants, and their sounds as well as letter formation through visual, auditory, and kinesthetic activities. Students also learn print concepts. Grades K-4 primarily.
Lindamood Phoneme Sequencing Program (LiPS) by Lindamood-Bell	Reading, Spelling, Speech (focus on phon	Full kit between $450.00 - $550.00 (some supplemental materials not included)	Multisensory, sequential, and systematic program to instruct in phonemic awareness and phonics. All ages can benefit.
Visualizing & Verbalizing by Lindamood-Bell	Reading comprehension, oral expression, organization of language	Full kit $500.00 (some supplemental materials not included)	The Visualizing and Verbalizing program develops concept imagery - the ability to create an imaged gestalt from language - as a basis for comprehension and higher order thinking. The development of concept imagery improves reading and listening comprehension, memory, oral vocabulary, critical thinking, and writing.
Seeing Stars by Lindamood-Bell	Phonemic Awareness, Sight Words, Encoding (spelling)	Full kit $500.00 (some supplemental materials not included)	The Seeing Stars program develops symbol imagery - the ability to visualize sounds and letters in words - as a basis for orthographic awareness, phonemic awareness, word attack, word recognition, spelling, and contextual reading fluency.
Lively Letters by Reading with TLC	Phonemic Awareness, speech production, early phonics instruction	Basic set $105 (some supplemental materials not included)	Lively Letters is a reading program that turns abstract letters and sounds into lively, colorful characters. Forty-four letters and letter combinations are embedded into colorful pictures that show students what to do with their mouths when making the letter sounds. Primarily used with PreK-Grade 2

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Language! by Jane Fell Greene	Phonemic Awareness, Word Recognition, Spelling, Vocabulary, Morphology, Grammar, Usage, Listening Comprehension, Reading Comprehension, Reading, Writing	Kits are about $1400 - 6 possible kits: A-F. Online version available at separate cost.	LANGUAGE!® is an intensive intervention for students who are substantially below grade-level expectations for literacy. With an explicit, systematic approach that is proven to accelerate the growth of struggling readers and nonreaders, LANGUAGE! integrates instruction across key literacy strands—foundational skills, writing, vocabulary, fluency, grammar, comprehension, and spoken English. Grades 4-12.
RAVE-O by Maryanne Wolf, Ed.D.	Fluency, Reading Comprehension, Close/Deep Reading, Text Analysis	Kit is about $1,000.00. (some supplemental materials not included)	RAVE-O is a small-group reading intervention that targets serious reading challenges. Its approach balances science and motivation to accelerate learning, close and prevent the achievement gap, and promote fluency, comprehension, and deep reading. Reading through Automaticity, Vocabulary, Engagement, and Orthography. Grades 2-4 (intended). ■

Closing The Gap LIVE WEBINARS

Engaging and Interactive!

$55 Single-participant fee. CEUs included.

Presuming Competence for Students with Severe and Multiple Disabilities

TUESDAY, APRIL 4, 2017

3:00 PM - 4:30 PM CDT

If the notion is that we presume competence with all students, then there should be no presumed restrictions on the opportunities we present to students. Students of all ages need the benefits of both fluency within conversations and the ability to generate language at any given time.

This webinar will demonstrate how adaptations to any communication system can help students be productive communication partners and enhance their learning and social communication experiences. While an emphasis will be on how students with the most significant disabilities and/or access issues can be effective communicators, these strategies will be appropriate for all students who use AAC.

PATI KING DEBAUN

Using CoughDrop to Support AAC Teams and to Engage Communication and Learning

Sponsored By CoughDrop
CEUs ARE available for this sponsored webinar!

TUESDAY, APRIL 11, 2017

3:00 PM - 4:00 PM CDT

AAC can be more than just a way to speak words using a device. Because the supporters surrounding an AAC communicator are vital to the communicator's success, CoughDrop has worked to create an app which will not only give every silent voice a powerful way to speak, but will also connect AAC supporters (parents, teachers, therapists) and keep the entire team focused on goals and learning.

BRIAN WHITMER
SCOT WAHLQUIST
STEVEN HELLAND

Successful Transition to College, Accommodations, AT and Advocacy

TUESDAY, APRIL 18, 2017

3:00 PM - 4:30 PM CDT

Transition from high school to college is a significant and critical time in a student's life and educational career. This informative session will inform participants of process, strategies, technology and resources to help ensure that the transition is a successful one! Many students are not aware of the various accommodations provided in college and how to access them. Learn about the different assistive technology and supportive accommodation options for students in high school and college.

Free and low-cost/ high quality AT options versus paid AT options will be explored and demonstrated. We will discuss the process for acquiring accessible educational materials (textbooks and handouts in digital accessible formats), alternative text and technologies to utilize the AEM materials; discuss the importance of self-advocacy and awareness skills, communication with professors and instructors, meeting with counselors, confidentiality, questions and paperwork involved; and learn the difference between high school and post secondary laws for students with disabilities.

We will discuss parent involvement and student independence as an adult, as well as parent and student rights in high school versus college. We'll cover how to seek accommodations in college including: when to start, what to ask for, who to contact, and what documentation colleges require.

Learn about the admission process versus the process for registering with the Disabilities Services Office on campus and how to access and use your accommodations. Information regarding the acquisition of accessible versions of textbooks will also be shared (as this differs from the high school process). Assistive technology and app options will be demonstrated, including literacy support, note taking support, executive function support and support for sensory and physical disabilities, on various devices and platforms. Campus-wide resources, such as math and writing support and specific tutoring and mentoring resources, will be shared.

This information is incredibly helpful for AT service providers, high school students, parents, transition coordinators, vocational rehabilitation counselors, school counselors/ advisors, high school educators and special educators. Many resources will be shared for participants to refer back to and use immediately.

DIANA PERSCHAUER

Creating the Right Environment for Successful AAC Use in the Classroom with Location Awareness

Sponsored By CoughDrop
CEUs ARE available for this sponsored webinar!

THURSDAY, MAY 4, 2017

11:00 AM - 12:00 PM CDT

Studies in the visual cognitive sciences have argued that we need to bring the environment into the AAC. Participants in this webinar will learn about the newest technology for AAC users - Location Awareness with Beacons, which is built in to SuperSpeak AAC and is an easy way to bring the environment into the AAC.

We will teach you how to best apply these findings in a classroom setting with your special needs learners, how to teach appropriate iPad behaviors to students with special needs and how to get started with using the iPad in the classroom environment.

KATRINE GULSTAD PEDERSON
KIRSTEN MCLOUD

REGISTER NOW!

90-Minute, Live Webinar Fees	
Number of Individuals	Price Per Person
1 - 4	$55
5 - 24	$50
25+	$45

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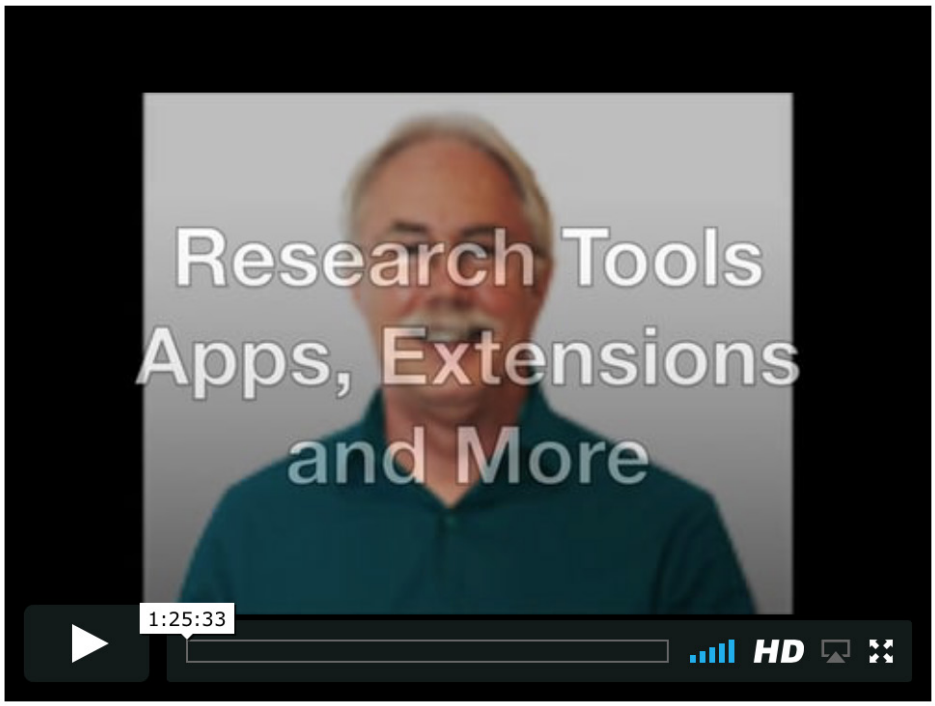

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Ok Google, What have You Done for Me Lately?

I was once told that people have an easier time connecting with content and learning new things by hearing stories. As a former special education teacher and self-proclaimed techie, I have great stories of how technology can change the lives of people in all stages of life.

IN A TIME LONG, LONG AGO…

When I first started teaching (which wasn't actually that long ago, despite what my former students might say), the only students who had access to technology were my special education students. My students used voice activation software, complex laptops with extremely customized digital environments and iPads that had neither a rear or front facing camera. My students often felt different within the classroom because they had more than everyone else. From my perspective, my students were lucky to have the supports they needed, but they typically didn't want the technology. They just wanted to be like everyone else.

FLASH FORWARD A FEW YEARS…

Our district had adopted G Suite for Education (formerly Google Apps for Education) and we had completely moved away from Microsoft programs. We also started creating carts that contained the first generation of Chromebooks. Instead of my students being the only ones accessing technology, everyone was accessing technology. The greatest part about using Google Chrome and Google Tools is that if a student is signed in to their Google account, their settings follow them to any device they access. As my students began using Google tools, I noticed that there were so many things we could do that I never dreamt possible.

LET'S GIVE EVERY STUDENT AN ASSISTANT

Before we started using Google tools, my students would turn on their device and go to Google.com. Once they arrived at the search engine, they would often blankly stare at the screen and start to type. However, after a few minutes, frustration was displayed on their faces and they would reluctantly approach a teacher or assistant. The conversation typically went, "Can you please type, 'Who was Abraham Lincoln?'" The staff member would either spell the words for the student to type or, as much as I hate to admit, type the text for the student. The student would then go back to their seat, excitedly hit search and then blankly stare at the search results. (View figure 1)

THE RESEARCH PROJECT

For a middle school student, independence is extremely important. For the students I had the privilege of working with, independence was often a little harder to obtain. For example, I worked with a student named Jack who is extremely intelligent, but has some physical limitations

JENNIFER LOTZE is the Instructional Technology Coordinator for the Hudson School District. She previously served as an instructional technology trainer in the Sheboygan Area School District and as an educational consultant at CESA 11. During her teaching career, she worked as a cross categorical special educator and focused on teaching individuals with disabilities how to use technology to be successful in their everyday lives. Within her special education program, she helped her students to create a successful business within the school environment. She is a Google for Education Certified Trainer and works with educational professionals all over the country as they integrate technology into their learning environments. She presents to help individuals get the most out of the technology they have access to and make accommodations to existing technology for use with all students. Additionally, she currently teaches an assistive technology course as an adjunct professor at Marian University. She received her Masters Degree from Carthage College in the area of Educational Leadership with an emphasis in Assistive Technology.

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Figure 1

that make tasks a little more arduous. Jack's greatest strength is his passion for using technology.

In one of Jack's classes, he was assigned a project where he had to learn about Abraham Lincoln and become an expert in all areas of his life, work and legacy. As the teacher presented the project and mentioned using technology to answer questions about Abraham Lincoln, I saw Jack's eyes light up. While Jack was beaming, I was trying to think through the best way to support him with this project while giving him the opportunity to be as independent as possible.

Once work time began, Jack and I started brainstorming ways he could get the answers he needed and create a product that demonstrated that he was an expert in the historical figure he was assigned. Luckily, the teacher did not hand out the technology immediately after she explained the project. This gave me time to find a solution that was more meaningful than a traditional project.

I went home and immediately started searching for options that would provide Jack the opportunity to find the answers himself. Jack is incredibly auditory and once he hears something, it usually sticks. As I was searching, I saw some articles about voice searching. I had always seen the microphone in the search bar on Google.com, but I never really thought to use it. However, the more I read about this icon, the more excited I got. As it turns out, if you verbally ask Google a question, Google will answer you back. Moreover, you can continue to ask Google questions on the same topic and it knows that you are asking about the same thing.

For example, if Jack asks Google, "Who was Abraham Lincoln?" It will recite some basic information, as seen below. But wait, that's not all! He can then ask, "Where did he live?" Google will then recite that he lived in Kentucky and Illinois. Jack would then have the opportunity to ask as many questions as he needed to in order to build his foundational background to get started on his project.

WRITING THE PAPER

Writing can often be a very frustrating experience for the individuals I work with. I had a student named Calvin that was so smart, but writing was a huge struggle for him. He had all the ideas in his head, but putting those ideas on paper was overwhelming. When Google Docs first came out, we were having to use our old dictation software to dictate text into a Google Doc. This was often frustrating because my students would have to train the software to recognize their voice and speech patterns. This process took an incredibly long time and was not meaningful for my students. I knew that we needed another option to get Calvin's thoughts on paper. I had just returned from a conference and the presenter was showing us the Nexus 7. The Nexus 7 is a 7-inch Android tablet that is a pure Google operating system. The great thing about the Android operating system is that is runs Google tools without any issues. Additionally, there was a microphone built into every application on the device.

I immediately knew I needed to get

some. The problem with technology is that budgets are tight and purchasing a piece of technology without knowing how it would work for a particular student is a risk. I then posted a project on Donors Choose asking for financial support to purchase two Nexus 7 tablets for my classroom. Within 48 hours of posting my project online, I received the amount of money that was necessary to purchase the devices we needed.

A week later, Google emailed me and said they would like to send me two additional tablets for my students to use in the classroom. Within one month, I had four Nexus 7 tablets. When the tablets arrived, we started using them immediately. Calvin would voice activate using the built-in tools to write emails and papers, and even set a timer when he went on a break. It's amazing how one piece of technology can make the world a more accessible place.

Additionally, these tablets can accommodate multiple users. On an iPad, there is one single user experience. There isn't currently a way to have multiple students share a device without having to sign in and out of many different apps. However, on an Android tablet, I can set up different user profiles for up to five students. This means that our students signed into their custom user profile with their unique accessibility settings and apps. This functionality allowed my students to share devices without the arguing that would take place when one student changed another student's settings. The best part about Android devices is that they are often half the price of an iPad. Lower costs of technology mean a higher chance of teachers having the opportunity to purchase these devices using the funds they have access to.

SHOW ME THE WORLD

The world can be an overwhelming place in general, but for some individuals, the world can be impossible to navigate. Imagine you are walking into a grocery store for the first time. What do you notice? The beeping sounds from the checkout aisles all making noise at different times without any logical pattern? The smell of the chicken being roasted next to the bakery with the decadent smell of vanilla cupcakes? What about about the noise of the carts being brought in from the parking lot?

In an effort to support our students who were very easily overwhelmed by unfamiliar places, we often created videos that would describe the experience of walking through the grocery store, going out for lunch or playing in the park. The problem with these videos was that they were taken from someone else's perspective. For example, I would often go to locations within our community on a Saturday night and walk through them describing what I was experiencing. The problem was that the student who was watching the video has no control of the experience as they learned. I would often have students choose to watch these videos hundreds of times to learn about a new place to decrease the anxiety associated with entering into the unknown. I was so desperate to find a way for students to control the content they were experiencing in a way other than play, fast forward and rewind. I wanted them to be able to look where they want, when they want.

GOOGLE GOODNESS FTW

Each year I anxiously sit by by computer and wait for Google i/O to begin its annual live streamed event. To be perfectly honest, there have been times that I have even taken a personal day to guarantee I can be present for all announcements that could revolutionize life as we know it. In June of 2014, I heard something that could potentially provide my students with a way to experience new places in their own way. Google Cardboard was introduced as an accessible, open source, virtual reality platform that anyone could use with an Android device (now iOs as well) and a piece of cardboard fashioned to look like an old View-Master. It was a small mention in I/O, but I hoped that it would explode. In the few months after the announcement of Google Cardboard, the idea of virtual reality for the masses was a hot topic. I hoped that there would come a time when I could get these in my classroom. I mentioned before that I would make videos for my students to use as they became familiar with the unfamiliar. We would also use Google Maps and Street View to experience places all over the world. Since classroom budgets don't typically allow for me to take my students on a dive to the Great Barrier Reef or walk around the Taj Mahal, we improvised. We would open Google Maps and each student would have the opportunity to choose a destination for us to travel to. Sometimes it was their house or neighborhood, but other times we traversed land near the Great Pyramids.

As Google Cardboard evolved, there were more and more features being added. There were two updates specifically that would truly support the students in my classroom. The first was that I could open up Google Street View on my phone and then use it with my cardboard viewer. This allowed my students to take control of what they see just by turning their head. I once worked with an adult who was in a wheelchair and we would go to a large open space so he could drive around to explore all the different views of Google Street View. His absolute fa-

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vorite was the very top of Pike's Peak. He could easily get a 360 degree view just by turning his chair.

The next update (and my personal favorite) was the addition of an app called Cardboard Camera. This app allows me to make my own "street views" for my students. I can also record the sounds that are happening as I take the picture. As soon as I got the app, I used it everywhere and started taking cardboard pictures with sound of all the places I was going. I then was able to create my own library of places that individuals could experience. The addition of this app is a game changer for how teachers can show students the world. I'm still waiting for a way for the smells to come with my pictures, but I'm patient. Google will get there!

OK GOOGLE!

As I mentioned before, technology can drastically improve the quality of life for people in all stages of life. I have an extremely stubborn father who would prefer to have kept his palm pilot for the duration of his life and, honestly, I don't blame him. Fast forward to 2014… I began to watch how my father was using the technology he had. He is a self-proclaimed hunt-and-peck typist, has me update his apps on his phone and will repurchase the same phone despite how old it is, just because he hates change.

Over the years, I had the privilege (some might disagree) of watching him use his technology to communicate with business partners, employees and family members. This "privilege" was extremely stressful as a special education teacher. I so badly wanted to help him complete tasks in a more efficient way. However, I knew I had to tread lightly so he didn't think he was doing it "wrong."

In an effort to support him, I started showing him how to use his Android phone as a personal assistant. Initially, he was a little reluctant, but as I showed him the functionality he could have, he was hooked.

To start, we turned on the functionality to have his phone answer him even when it is locked. Then I told him the magic words. Ok, Google. By using the words, "Ok, Google" he now has the ability to control his phone and complete tasks hands-free. For example, he would loudly say, "Ok Google Now! Send an email to Holly (my sister)." His phone would ask which email address should the email be sent to and then ask him what the text of the email should say. He then went to explain to my sister that he was writing her an email and he was doing this "awful fast" now that he could write an email using his voice. My heart was racing as I watched him yell at his phone. I'm pretty certain that he thinks the only way Google can hear him is if he yells!

A short time later, my father had a tracheotomy. This procedure was done so he would have an easier time breathing due to complications from Thyroid cancer surgeries. Initially I was concerned that the change to his rate of speech would not allow him to use the voice activation functionality on his phone. However, Google always surprises me by rising to the occasion. As I watched him use his phone and yell "Ok Google!" I noticed that Google was patient and would wait for him to finish was he was trying to articulate, despite needing to take extras breaths between each word.

Google's mission is to "organize the world's information and make it universally accessible and useful." Each day I see this mission in action as adults and students use Google tools to meet their unique needs. We used to live in a world that recognized books on tape and voice activation as assistive technology, but now we live in a world where what's good for one is truly good for all. ■

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35th ANNUAL CONFERENCE

Closing The Gap

OCTOBER 18-20, 2017

Preconference Workshops

Monday and Tuesday, October 16-17, 2017

MINNEAPOLIS, MINNESOTA

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it is a network of invaluable resources – teachers, therapists, clinicians, parents, end users and manufacturers – all emphatically working together to change lives with assistive technology. The 35th Annual Closing The Gap Conference promises nothing less than excellence!

- ✔ **17 PRECONFERENCE WORKSHOP** Day-long workshops, conducts by nationally recognized leaders in the field, providing in-depth professional skills necessary to successfully implement assistive technology in the lives of prersons with disabilities.

- ✔ **THREE DAYS OF PRESENTATIONS AND HANDS-ON LAB OPPORTUNITIES** Sessions describing and/or demonstrating successful strategies and practical applications of assistive technology for persons of all ages with disabilities
- ✔ **COMMERCIAL EXHIBITS** Extensive exhibition area displaying and demonstrating state-of-the-art assistive technology products and implementation strategies.
- ✔ **CEUS AND ACADEMIC CREDIT**

ADMINISTRATORS PARTICIPATE FREE

This year, when an additional staff member registers for the conference. When any school district or hospital / clinic staff member registers for a preconference workshop or the three- day conference, one administrator (Special Education Director, Principal or Hospital / Clinic Administrator) from that organization can attend the conference, Wednesday through Friday, and the exhibition preview, Tuesday evening, for FREE! Limits apply.

$30 RETURN DISCOUNT

A $30 **"RETURN" DISCOUNT** is available to ANY past conference registrant and must be used by **JUNE 30, 2017**.

This discount can be used for any preconference workshops OR conference registration and is IN ADDITION to any and all other applicable discounts.

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LEARN MORE AND REGISTER ONLINE: WWW.CLOSINGTHEGAP.COM/CONFERENCE/

Conference - Wednesday, Thursday, Friday, October 18-20, 2017 Includes Preview of Exhibits – Tuesday Evening, October 17 AND Continental Breakfast Wednesday and Thursday, October 18 & 19

Registration Received	On or Before June 30	July 1 - September 7	September 8 - October 5	October 6 - Onsite
Standard Rate	**$470**	**$520**	**$545**	**$570**
Group Discount - 5 or more **Group Discount - 8 or more** *All group registrations must be received at the same time.*	Groups 5+ Deduct $30 Groups 8+ Deduct $50 Groups 20+ Deduct $70	Groups 5+ Deduct $30 Groups 8+ Deduct $50 Groups 20+ Deduct $70	Groups 5+ Deduct $30 Groups 8+ Deduct $50 Groups 20+ Deduct $70	Groups 5+ Deduct $30 Groups 8+ Deduct $50 Groups 20+ Deduct $70
Parent Rate *(A letter describing your child's disability must accompany registration)*				**$290**
Full-time Student Rate *(Proof of full-time student status must accompany registration)*				**$315**
Presenter Rate	**$365**			**$415**
Exhibitor Rate	**$365**			**$415**

Single-Day and Exhibit Hall Only Registration	Price
Thursday Only - October 19	**$290**
Friday Only - October 20	**$125**
Exhibit Hall Only - Tuesday evening through Friday, October 17-20	**$125**

Preconference Workshops - Monday and Tuesday, October 16-17, 2017 Includes Preview of Exhibits – Tuesday Evening, October 17	Price
Monday, October 16 *(Some preconference workshops carry an additional fee for materials)*	**$285**
Tuesday, October 17 *(Some preconference workshops carry an additional fee for materials)*	**$285**
BUNDLED PRICING! Monday and Tuesday Bundle $80 savings *(PC-1 through PC-16 only)*	**$490**
Sponsored Preconference Workshop - PC-17, Tuesday, October 17 *(PC-17 not applicable for bundled pricing)*	**$125**

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PC-1 Two-Day Introductory PODD Course (Official PODD Course) *Linda J. Burkhart, B.S., Augmentative Communication Specialist*

PC-2 State-of-the-Art Classroom Rubric/Tool: Autism and Intellectual Disabilities *Mo Buti, M.Ed-BD, M.Ed-Admin, QIDP, Instructional Expert for People with Autism*

PC-3 Comprehension Instruction for Students with Significant Disabilities: Beyond "Wh" Questions *Gretchen Hanser, Ph.D., Literacy and AAC Consultant; Caroline Musselwhite, Ed.D., CCC-SLP, Assistive Technology Consultant; Erin Sheldon, M.Ed.; Deanna K. Wagner, M.S., CCC-SLP*

PC-4 Expanding Environments with AT and AAC, using access, integration of systems and more technology itself throughout the student's classroom day - "wired" and "wirelessly": a Hands-On *Karen M. Kangas, OTR/L, ATP*

PC-5 Practical Strategies for Effective AAC Implementation *Lauren Enders, M.A., CCC-SLP, Assistive Technology/ Augmentative Communication Consultant*

PC-6 Access to All Things Chrome *Mike Marotta, ATP, ATACP, Technology Specialist; Kelly Fonner, M.S., Educational/Assistive Technology Consultant*

PC-7 Early Literacy Success: Students Who Have Complex Communication Needs - A Make-and-Take Workshop *Pati King DeBaun, M.S.,Speech Language Pathologist and Consultant*

PC-8 Full STEAM Ahead: Making Science Content Accessible to All *Luis Perez, Ph.D., Inclusive Learning Consultant; Mark Coppin, M.Ed., ATP, Director of Assistive Technology; Nancy Kawaja, Itinerant Resource Teacher Assistive Technology*

PC-9 Creating Assistive Technology Solutions in Minutes: Part 2 - A Make-and-Take Workshop *Therese Willkomm, Ph.D., ATP, Associate Clinical Professor and Director of ATinNH*

PC-10 Using PowerPoint to Promote Literacy, Language and AAC in the Classroom *Carol Goossens, Ph.D., AAC Consultant; Caroline Musselwhite, Ed.D., CCC-SLP, Assistive Technology Consultant; Gretchen Hanser, Ph.D., Literacy and AAC Consultant; Laurel Buell, M.Ed., OTR/L; Jeanmarie Jacoby, M.Ed., Special Education Teacher*

PC-11 Never Give Up: Finding and Supporting Access to AT and AAC for Students with Complex Bodies, including access, seating, postural control and sensory processing *Karen M. Kangas, OTR/L, ATP*

PC-12 What's App-propriate When and Why for Supporting Writing in Students with Disabilities *Brooke Hardin, M.Ed., Adjunct Professor; David Koppenhaver, Ph.D., Professor and Graduate Reading Program Director*

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PC-14 Chrome, Google and Collaborative Tools: AT and Support Always at Hand *Dan Herlihy, AT/ Technology Resource Specialist*

PC-15 Teaching Scanning Without Sacrificing Literacy *Michele Bishop, B.A., Assistive Technology Provider and Clinical Educator*

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Children with Multiple Challenges

As a parent to a child with multiple challenges, what emotions does Assistive Technology (AT) invoke within you? What is AT? What types of AT do I need for my child? Where do I even begin? Deciding on what types of AT would be most appropriate for your child is an ongoing process. As your child grows and changes, so does your choice of AT. Assistive technology devices are identified in the Individuals with Disabilities Education Act (IDEA) 2004 as "any item, piece of equipment or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain or improve the functional capabilities of children with disabilities." AT can be as basic as a weighted spoon or a complex communication device.

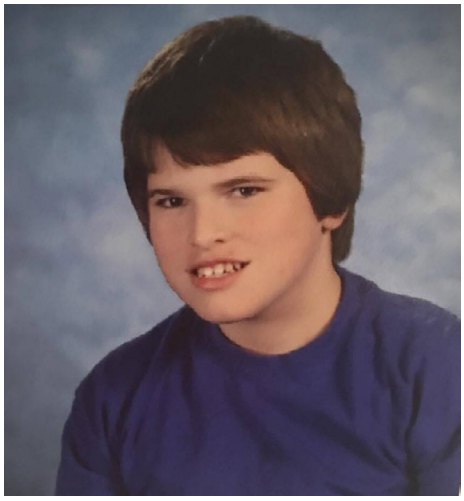
WHAT IS ASSISTIVE TECHNOLOGY?

- AT can be low-tech: communication boards made of cardboard or fuzzy felt.
- AT can be high-tech: special-purpose computers.
- AT can be hardware: prosthetics, mounting systems and positioning devices.
- AT can be computer hardware: special switches, keyboards and pointing devices.
- AT can be computer software: screen readers and communication programs.
- AT can be inclusive or specialized learning materials and curriculum aids.
- AT can be specialized curricular software.

AT can be much more – electronic devices, wheelchairs, walkers, braces, educational software, power lifts, pencil holders, eye-gaze and head trackers and much more. Assistive technology helps people who have difficulty speaking, typing, writing, remembering, pointing, seeing, hearing, learning, walking and many other things. Different disabilities require different assistive technologies. The purpose of this article is to find the appropriate AT for your child to learn academics and show what he has learned, for example, the use of a smartboard, tablets, computers, etc.

There are some basic questions that ought to be asked when considering AT for your child in the classroom.

- What difficulties is my child experiencing in the school environment for which assistive technology intervention is needed?
- What are her strengths? AT should utilize your child's abilities to help compensate for her disability.
- What strategies, materials, equipment and technology tools has my child already used to address the concerns?
- What new or additional assistive technology or accommodations should be tried?
- What will the criteria be for determining whether my child's needs are being



RITA MOLINO, MEd, educator, advocate and parent. She is currently in the dissertation stage of earning an EdD in Curriculum, Instruction and Assessment. Rita is a certified teacher for students with disabilities for grades 7-12 and a certified school counselor for grades K-8. She has over 25 years of experience in education, from early childhood to high school. As a parent to a child with different abilities, Rita lives the life of special needs every day and incorporates what she has learned as a parent. Her youngest son is Scotty. He is 14 years old and has Angelman Syndrome. "He is my teacher every day. I have learned what pure love and joy look like."

https://www.facebook.com/ritamolinotrains/?ref=aymt_homepage_panel

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met while using assistive technology during the trial period?

Your role as a parent in developing the AT part of the IEP is to articulate your ideas and feelings about the AT being considered. You can offer information about what you see at home and bring up any concerns you have. It is imperative that every IEP team member keeps in mind the long-term vision for your child and takes steps toward that vision.

Deciding and choosing what AT is appropriate for your child doesn't have to be an overwhelming and complicated task. Every guideline I have found for parents and educators has explanations like this one: "Selecting an appropriate AT tool for a student requires parents, educators and other professionals to take a comprehensive view, carefully analyzing the interaction between the student, the technology, the tasks to be performed and the settings where it will be used. Keep in mind that AT assessment is an on-going process, and it is critical to periodically re-evaluate the "match" even after a technology tool has been selected. This will help ensure that the student receives the maximum benefit from AT and is able to reach her full potential." (Raskind, 2006)

Granted, as parents, we need to understand our school's protocol when it comes to asking for AT to be used in school. However, at home, exposure is the basic "assessment" tool to determine what will work for your child. As an educator to exceptional students, it is important for me to understand assessment and implementation of AT for any given student. But as a mother to one very exceptional child with Angelman Syndrome, I have allowed my son, Scotty, to show me what AT works best for him through exposure.

Your child is not too young or too old to start using AT. Obviously, at home it is not a formal assessment, just start introducing your child to a tablet with appropriate apps for academics, coloring, reading or just fun games. For the school setting, ongoing communication with his educational and therapeutic team is critical. You also need to know your rights and your child's rights under the Individuals with Disabilities Education Act (IDEA). Be aware of the school's role and responsibilities in implementing AT into his IEP (Raskhind, 2006):

"Assistive Technology: Rights under the Individuals with Disabilities Education Act (IDEA) Under IDEA, AT must be considered for children with disabilities if it is needed to receive a "free and appropriate public education." It is the school district's responsibility to help select and acquire the technology, as well as provide training to the student in the use of the technology, and, at no cost to parents. This is done on a case-by-case basis. It is the IEP team (including parents and students) that decides as to the necessity of AT. It is also the IEP team, (or any individual member) that initiates a request for an AT assessment. The assessment may be performed by school district personnel, or an outside consultant working in conjunction with the IEP team. Parents should know that at present, there are no standard policies, procedures, or practices among school districts for conducting AT assessments. This is more reason for parents to be informed as to the critical elements in conducting a quality AT assessment"

I would like to tell you the process from start to finish is smooth going. It is not a straight path from assessment to implementation. There most likely will be hesitation and opposition. This is where you get to show those special needs parent muscles. Stay strong in the pursuit of AT implementation. Take video of your child using AT at home. Take screen shots of your child's work on the laptop. Bring best practices academic articles to the team. I know you are proficient in operating in that flux of cooperation and unrelenting advocacy.

In the early days, Scotty, couldn't sit still long enough to watch 90-minute movie. His processing of the world around him was scattered and, at times, overwhelming. Through learning what sensory processing disorder is and what an intense amount of sensory input he needed to organize his neurological system helped

us to get Scotty to focus long enough to watch music videos and parts of movies on YouTube. Starting at 5 or 6 years old, he enjoyed playing on our personal computer and laptop. He could navigate the systems to find his games, videos and channels on the Internet. At first, it was difficult to maneuver the mouse or keypad with his tremulous hands. Scotty received his first iPad at 8 years old. Touchscreen was critical in how Scotty used AT to show us what he can do on these devices.

I have been witness to his perseverance through trial and error. Scotty has shown me that he has great problem solving skills and is quite adept in maneuvering an Android or Apple product. Many well intended therapists and teachers set the bar low for Scotty. Thankfully, Scotty and I never allowed their lack of awareness and knowledge be the determinant of what he is capable of.

The first and foremost belief system you must adhere to is that your child is capable. Presuming competence is key. The primary misconception is that children with multiple challenges are not capable of learning. The question is not if your child can learn. The question is how does your child learn and how do you adapt his environment to allow him to show what he knows. AT is the means to realize our children's interests, aptitude and abilities.

Remember, when it appears your child is not listening, he is. Your child may not be able to keep eye contact, but that

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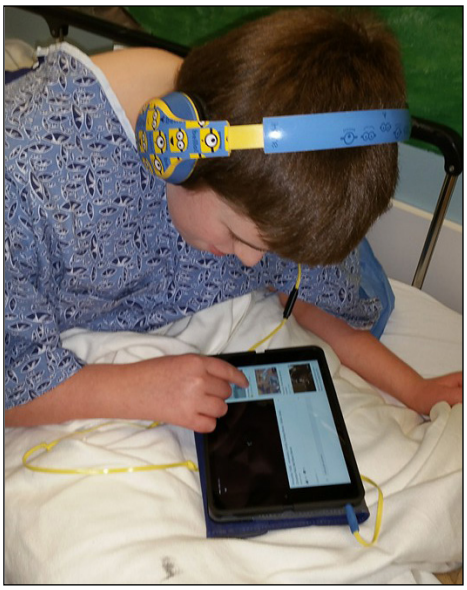

doesn't mean they didn't hear every word you said to them. Even our children who seem so distracted are paying attention. Our idea of what it looks like to be listening, paying attention and learning is not what our children portray. Learning is going on. Now it is up to us to get our children to show us just how much they are learning. The problem is not our children's inability to learn, it is our expectations of what learning looks like. We have been taught that learning is taking place when a child is sitting still, silent and eyes are on the teacher (or parent). Our children's learning does not display itself in this manner.

Perception of the time it should take for a child to learn something is also an issue. What I mean is we give up too soon, thinking our child isn't "getting it." So, we stop exposing them to learning tasks and AT. In his younger days, Scotty had the pictures for communication, something like PECS. He particularly liked the plastic laminate covering on the pictures. He'd crinkle them, put them in his mouth and toss them to the ground. Speech therapist after speech therapist gave up. Yet he was learning. One had the audacity to tell me that any communication system is "above" Scotty and he will never be able to use a universal mode of communication. The conversation took a turn. I took the lead from there. She was fired on the spot. I informed her that her inability to assess all of Scotty's challenges and address those first made her inept in her ability to work with my son. My son is already communicating and has been for years. Today, Scotty prefers the iPad over the Dynavox for communication. He is, it is, we are a work in progress. We have some days of incredible communication, others regression, but we continue. We never stop the exposure to AT for communication, learning and showing what he knows.

Our timeline of when our children will perform any given task is not appropriate most of the time. Therapists, teachers and parents need to step back and reevaluate the environment, the teaching style and tools and, above all, have endurance and patience. Our children do things on their timeline, on their terms. Exposure, repetition, modeling, practice, exposure, repetition, modeling, practice and repeat.

Scotty's teacher still has learning tasks at the first-grade level. Scotty is doing age appropriate grade level (7th grade) lessons on his iPad and in a method called Rapid Prompting Method (RPM). The burden is on his RPM instructor to equip Scotty with the skills to show what he has learned during each lesson. The burden is on me, his mother, to give him the tools to gain those skills to show what he knows. The burden is not on Scotty to prove he is worthy of AT or age appropriate lessons. It is inherent that he and all children deserve opportunities to show us what they know.

Once we change our expectations of the time line of learning and what learning should look like is when we finally open opportunities for our children to step into who they have been all along: a cognizant learning being bursting to show us what they know and what they continue to learn. I know Scotty may have a longer processing time than other children. If it takes him 20 minutes to process input, how can I expect him to be done with at task in 25 minutes? We must acknowledge that our child's timeline is different than our expectations and that is ok. Recognize that your child's learning is unique to him.

Many factors affect our children's use of AT. Our child's abilities and difficulties must be considered because of their multiple challenges. Things to consider:

- Medical Considerations. Does my child's medication affect his learning or recognition systems? Does his level of awareness change in response to when he receives his meds?
- Physical Challenges. Is the seating in his classroom appropriate? My child needs to be in a position that is best for engagement to occur. If my child has tremulous hands, what can be used to assist him with that? Do we need to consider a head or eye gaze for his AT?
- Cognitive Challenges (memory, recognition, generalizing learning). How does my child respond to a new person, environment or person? How many exposures does it take for him to retrieve or remember that information? Does this recognition only happen in the setting in which the information was learned or does he have carry over into other settings? How does he show they know or recognize information? How long does it take him to learn new information? Take note here that repetition is ok. Multiple exposures are fine. This is not a sprint. Learning is an ongoing, life long process.
- Sensory Challenges. How does my child's sensory system impact learning? Would a sensory diet benefit my child? How much and what kind of sensory input does my child need to be able to learn the task at hand? Is my child getting enough or too much sensory input at any given time? Do his sensory challenges change throughout the day?
- Challenging Behaviors. What do they look like? Can you predict when they occur? How do you deal with them? When we address the sensory and communications needs, do the challenging behaviors decrease? Every behavior is a form of communication. Implementing AT to help our children communicate will alleviate challenging behaviors.

I know this journey you are on is not an easy one. I am on this journey with you.

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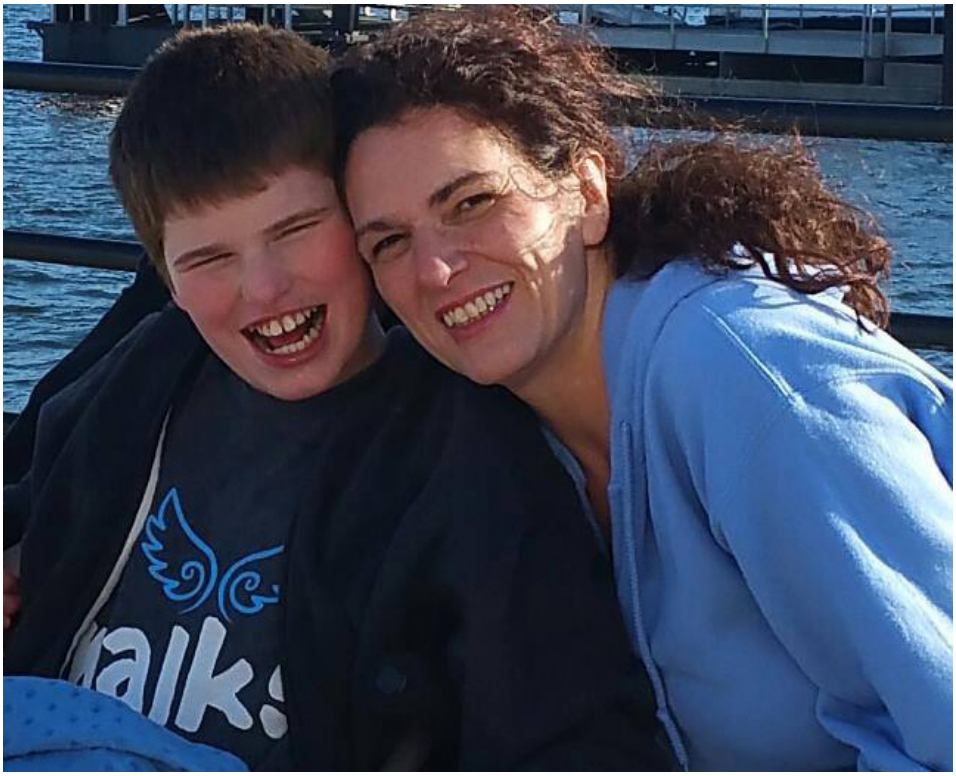

Implementing assistive technology may seem like just one more thing on your plate to contend with. If you get anything out of this article, please understand this: you are doing an amazing job. You get up each day and rise to the challenges of each day and give your all. Ok, some days maybe not your all, but you are still doing what needs to be done. Balance is key, even in assistive technology. If your child's school will not use the iPad for lessons and insists on paper and pencil, maybe that is a battle you can give up and he can use the iPad at home. However, if your child's school refuses to do an AT assessment for a communication device and yet they are complaining of challenging behaviors, that is a fight you must put those parenting muscles on for.

"For people without disabilities, technology makes things easier."

For people with disabilities, technology makes things possible.

— International Business Machines (IBM) 1991 training manual

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Increasing Family Buy-In for AAC

In my work as an SLP, one of the biggest hurdles I have is getting parents and other providers to "buy-in" on the idea of augmentative and alternative communication (AAC) for a child. On the surface, everyone agrees that a child with special needs must have an outlet for communication. We talk about making sure the AAC system is with this child at all times. (You wouldn't go anywhere without your voice - so don't take theirs away.) The connections between communication and behavior are clear: negative behaviors decrease when a child has a reliable communication system. Yet, I have been on many teams where the use of an AAC system does not increase as soon as it is given to a child. Some might say it is a failure of the evaluator to provide adequate training. Others might say that the school district or service coordination system has failed because they did not agree to pay for training. You could cite resistance by members of the team who are uncomfortable with AAC and just want the child to "use their words." Lastly, people might fault the SLP for not learning the system fast enough to make sure that the child "wants" to use it.

Regardless of where blame is placed, it is a tragedy that AAC systems are recommended and are sitting in a backpack and not used regularly. Old habits die hard, and the use of "traditional" methods of communication for a child take a long time to change. Is there a way that we can facilitate the process? Is there more that can be done than just saying we need to "model" communication? What is the key to unlocking the potential of AAC for children with special needs?

TRAINING

I have worked with a few evaluators over the years, and the biggest takeaway from their evaluations (even more than the AAC system that is recommended!) is the need for training for parents, caregivers and the people who work on the child's education team. Time and again, I have seen that recommendation be politely ignored. Whether it comes down to a matter of cost, or whether the team thinks that they can "learn on the fly," the lack of training on an AAC system severely decreases the likelihood that it will be used with consistency going forward.

Some research has shown that speech-language pathologists do not feel as though they have adequate training in AAC implementation (Marvin, Montano, Fusco, & Gould, 2003). Costigan and Light discuss the need for structured pre-service training for professionals to ensure knowledge of instructional methods and methods of service delivery (2007). Clearly, there is a need for professionals to know more about AAC and its implementations. Let's think about how much it could help educational professionals, such as teachers and paraprofessionals. Moreover, think about how the appropriate training could help family members! Support is available in a variety of forms for families and providers that want to learn. The table below shows some of the current resources available from some well-known AAC apps. On each of these

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support pages, there are text, video and even 1:1 training options available. Of course, there are always options within YouTube to see tutorials or other professionals and families using devices or outlining options.

App	Website
LAMP: Words for Life	https://aacapps.com/lamp/support
SuperSpeak	http://superpl.us/superspeak/#support
AssistiveWare (Proloquo2Go)	https://www.assistiveware.com/support
Speak for Yourself	http://www.speakforyourself.org/tutorials/
TouchChat HD	https://touchchatapp.com/support/touchchat

INFORMATION

Children with special needs (especially children who are non-verbal) communicate with adults and peers in their own way. Negative behaviors, idiosyncratic behaviors, gestures, noises, word approximations and other atypical communication are ways that these children make their ideas, wants and needs known. Information between parents and professionals is crucial to bridging the gap between current behavior and communication through AAC.

Communication must be functional and meaningful to the child with special needs. Sam Blanco, an ABA specialist, talks about functional communication in her post in Advance Magazine (2015). When it becomes clear to families and providers about the connection between a child's behavior and his/her ability to communicate, sometimes a "light bulb" will go off and they can get on board with increasing communication in a more functional sense.

An activity that can increase a family's awareness of the links between communication and behavior is to ask them to try and communicate non-verbally for a period of time (I recommend short periods - from 10 minutes to 30 minutes) and then tell me what means they used to get their ideas across. Undoubtedly, you will see the use of hand gestures, facial expressions or even physical behaviors (pulling someone to a desired object; touching someone to get their attention). I have found that this exercise really opens up a parent's view of what happens in communication situations.

LISTEN TO THE PARENTS

In my work, I've had many conversations with parents about their children. Whether it is conversing about stuttering, language processing or the reliable use of an AAC system, it is enormously important to spend time listening to a parent about how communication goes at home.

Often, parents have told me they "know" what the child wants or they can "figure it out." I know that families are incredibly busy, and I have heard about "forgetting" to take the device out of the backpack. Sometimes, I have had parents tell me about a communication challenge and how they wanted the iPad there, but it was too late to go and grab it. I am passionate about communication so I try to help the family see the importance of an AAC system and how it needs to be used

Figure 1 - Listening is our most important skill.

consistently! As a communication expert, it's hard not to do that! (Figure 1)

Here are some questions that can help drive the conversation about communication at home. Depending on the child, sometimes a Functional Behavior Assessment (FBA) or the AAC evaluation has answered some of these questions. It's important to continue the conversation about these ideas; sometimes families (and even providers) need to hear something more than once before they can make a lasting change. Overall, when asking these questions, be patient and listen to the caregiver's responses. This will help to build a relationship that can help make a change in the home environment.

How does _____ tell you about what they want?

How does _____ tell you about pain/discomfort/unhappiness?

If _____ seems upset, how do you know about it?

Do you ever learn about _____'s day at school/program/day care? If so, how do they tell you?

Lastly, I think it's necessary to ask this question because it demonstrates a lot of information to me about family dynamics and communication. Whether it's intuitive or because their child has a limited diet, some families will say they "know" what their child wants.

WHAT'S MEALTIME LIKE AT HOME?

For children with limited diets, particularly because they might be "picky," I try to encourage families to give choices within those restrictions. When parents say they "know," I try to help them break down those ideas so that communication can open up in the area of meals as well.

REALISTIC RECOMMENDATIONS

When AAC systems are recommended, it can sometimes be an overwhelming situation for families. There might be months or years of communication behaviors that have been successful (whether partly or completely) that need to be examined, shaped and/or changed. This is a daunting prospect for some families because it requires changes in multiple areas of their lives. It is of the utmost importance that families be given realistic recommendations that allow for incremental change so that their comfort level increases and AAC use can increase for the child.

Recommendations are based on the right fit for a child when matching their needs with the features of the communication system. Considerations should also be made for the right fit for a family. Ease of programming is one aspect. If the SLP or special education teacher knows how to add/change vocabulary, but it takes longer for the family to do that, there could be valuable time lost in interactions at home. Additionally, frustration might build when caregivers feel as though they cannot make effective changes to help their child. The concept of "just-in-time" (JIT) programming has been researched by Janice Light and colleagues recently (2016). The idea behind JIT is to increase communication opportunities by allowing families to access and change vocabulary quickly. Whereas some apps can take a minute or more to reliably program a new vocabulary item, an app like SuperSpeak is incredibly easy to program. While engaged in play with your child, you can quickly adapt their communication system by snapping a picture, adding text and using it right away. (Figure 2)

When thinking about the best fit for a family, we should factor in communication with different members of the family in different contexts. With many apps, you can bring the device with you wherever you go and use it when communication opportunities arise. Other apps, such as SuperSpeak, allow families to have vocabularies shared over multiple devices so that any communication partner can edit as they see fit. The advantage of this feature is to empower communication partners to make changes when interests shift for the child.

Additionally, there are new horizons that are being explored with AAC apps, such as SuperSpeak, and the use of "nearable" and beacon technologies. In these technologies, SuperSpeak recognizes the "nearable" or beacon and can highlight pre-selected vocabulary. When we are

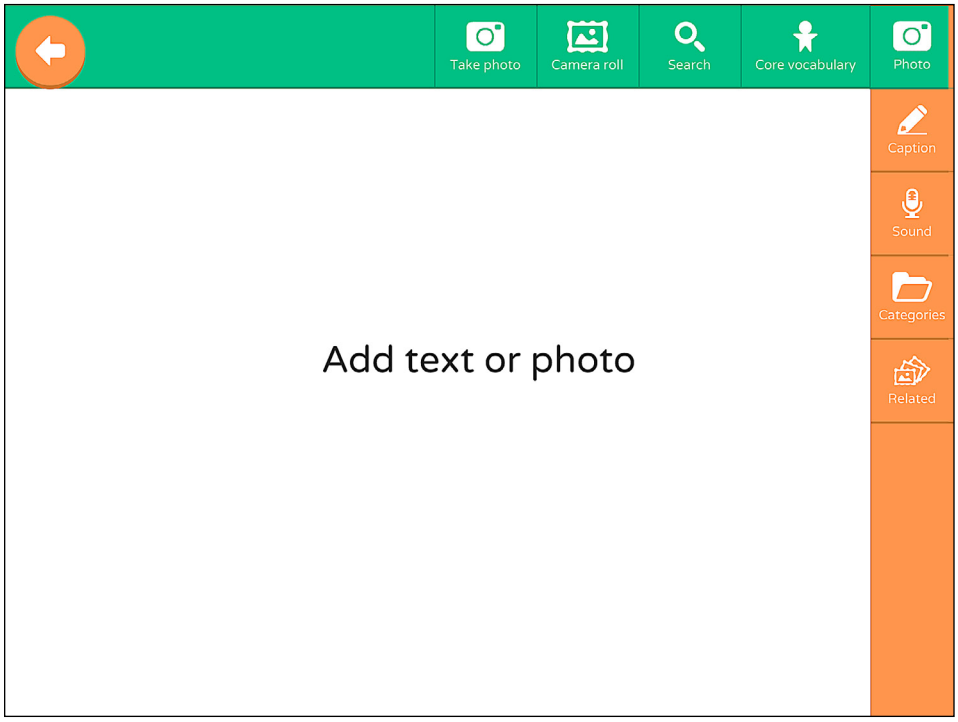

Figure 2 - This is the interface for entering in vocabulary in SuperSpeak. Photos, Captions and Sound are all accessible from this one page.

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looking at increasing family buy-in, these emerging technologies are very exciting. Imagine simplifying communication by having preferred or frequent vocabulary available when moving to different places in home or school. Although other apps, such as Speak for Yourself and LAMP Words for Life, allow children to either explore or learn new vocabulary within less challenging contexts, the ability to have vocabulary at the ready in facilitative contexts can ease the transition to more AAC use. (Figure 3)

Make it a goal to target one communicative interaction each day for a week. After asking parents about typical communication patterns ("How does _____ tell you about what they want?"), you can use that knowledge to inform what you would target for the next week. Making the connection between your initial questions and these short-term goals is incredibly important! If a family member or other professional can see the small changes, they will more likely buy-in for changes down the line. For example, a goal could be to make sure that the AAC system is available during downtime in the afternoon, either before or after dinner. Encourage the family to set aside 5-10 minutes to be available for any requests. Although that amount of time might even seem too much in this busy day and age, reinforce the importance of changing communication habits.

After targeting a goal a week, slowly grow to a monthly target. After increasing communicating success with AAC in areas such as requesting, it might be time to target a more challenging goal, such as communicating about the child's day. When communication skills are being used in a new area, or when increased communication is being targeted, it is helpful to pre-program parts of phrases or whole phrases. By doing this, you are increasing the demands in a reasonable manner so that the child can see success with limited frustration.

Set up games to make communication more fun! SuperSpeak has a "Play" function built into the welcome page. This feature of SuperSpeak allows "games" to be created with the child's own vocabulary pictures, in addition to searching for other available images. The user community also gives access to other games that have been made by other people that can be edited and adapted for use. Games like "I Spy" or turn-taking games, such as charades or Guess Who (or other versions of "guessing" games, like Hedbanz, Jeepers Peepers, Heads Up) can be engaging and increase AAC use in a fun and functional sense. Pre-programmed phrases can ease communication during these times (i.e., Is it an animal? Does your person have black hair? I spy something that is _____). Over time, phrases can be stripped down to increase generative use of AAC or left in the system to maintain ease of access. (Figure 4)

Figure 3 - This is an example of the Estimote Beacon which can be accessed by SuperSpeak. Just stick to the wall, and it's ready to go! Go to estimote.com for more information.

Encourage journal use. This may seem like another drain on time for families that already have little or no "extra" time in their day. However, I have found this to be a great recommendation to help families see the growth in communication skills and abilities over time. The idea of seeing long-term change is the best reward for encouraging AAC use.

Get everyone involved in vocabulary! On the surface, this is an easy concept to grasp. It makes sense to have the entire team be involved in the vocabulary selection process. For some apps, the process relies on solid communication. Whether through email, text, notes or phone calls, the educational team needs to be in touch with the family to address any changing needs in vocabulary. As mentioned before, the cloud capability of SuperSpeak allows for vocabulary to be changed by any member of the team (or family), and the vocabulary stays up to date. With this kind of app, there is also accessibility on more than one device. Whether being in direct communication or having the ability to change vocabulary independently, it is imperative that vocabulary on the device changes as the child's wants and needs change.

There are a wide variety of options available to families and professionals when it comes to AAC. Evaluators make recommendations based on feature matching and other factors and absolutely try to match the best option to the child. As an SLP who has been involved in implementation more than evaluation, I have seen the benefits of communication, incremental goals and making AAC

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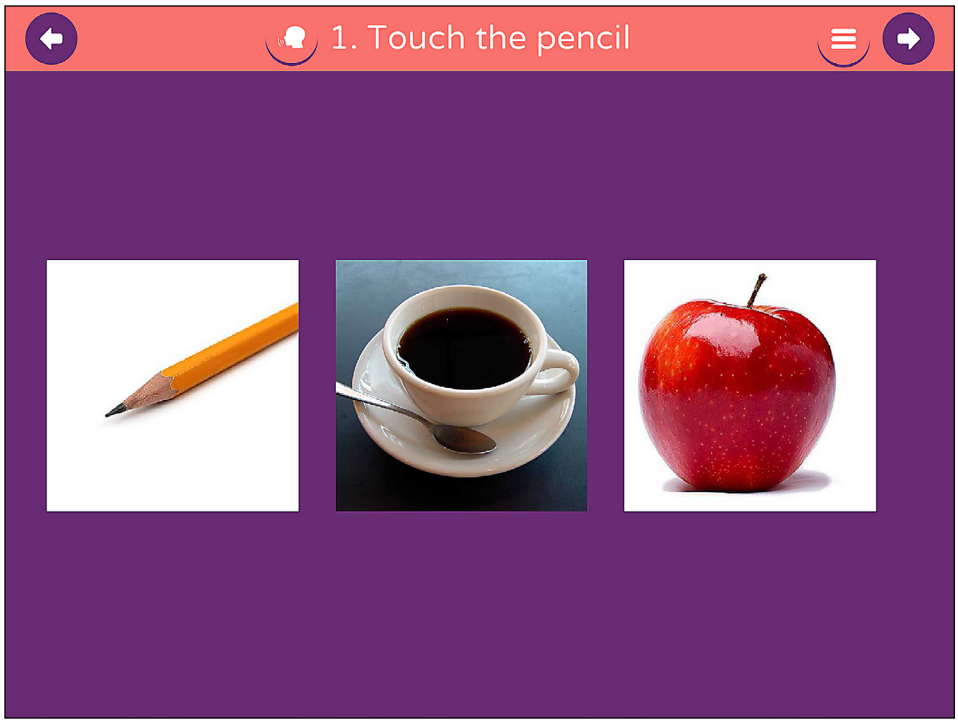

Figure 4 - This is what one of the screens looks like in Play mode on SuperSpeak. Children can quickly access games with their vocabulary, or learn new skills such as labeling and categorizing!

meaningful to both the child and team members. Consistently utilizing these communication options can open up a world of speech and expressive language to a special needs child. To allow these devices to go unused is a shame. Let us keep thinking of ways to make communication more meaningful for our children and work towards better communication, in general!

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PRODUCT INFORMATION: AAC APPLICATIONS

SuperSpeak AAC application by SuperPlus AS. Available through the Apple App Store. Subscriptions range from 3 months to 12 months at costs of $14.99 to $109.99. https://appsto.re/us/petO4.i

CoughDrop AAC application. Available online, through Apple App Store, Google Play Store and Amazon App Store. Subscriptions range from $6 monthly to $200 for 5 years. https://www.mycoughdrop.com

Speak for Yourself AAC application by Speak for Yourself LLC. Available through Apple App Store. Cost: $199.99. Some voices are extra ($24.99). https://appsto.re/us/M2NWC.i

Proloquo2Go AAC application by AssistiveWare. Available through Apple App Store. Cost: $249.99. https://appsto.re/us/Kmvys.i

TouchChat HD AAC application by Silver Kite. Available through the Apple App Store. Cost: $149.99. https://appsto.re/us/4glXx.i

LAMP Words For Life by Prentke Romich Company. Available through the Apple App Store. Cost: $299.99 https://appsto.re/us/maU2G.i

PRODUCT INFORMATION: BEACON TECHNOLOGY

Estimote Proximity Beacons by Estimote, Inc. Available online from www.estimote.com. Cost: $99 for Dev Kit with 3 beacons.

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product spotlight

TOTI has a Comprehensive Program for Teens and Adults Struggling to Read & Speak

TOTI Virtual Teaching

TOTI Virtual Teaching Assistant is an innovative online software that uses multimedia, speech recognition and text to speech technologies to help students practice reading and comprehension autonomously. This solution is modeled upon several educational theories as well as current literature on practice and repetition. A diverse base of digital books specifically composed for TOTi aims to provide an improved reading experience for students. Reports and graphs provide insight to parents and educators into the progress and efforts made by students.

BENEFITS FOR STUDENTS

We make it easy for students to get th self-guided practice they need, to go at their pace, conveniently at home.

- Interesting, easy-to-read materials written specifically for teens and adults
- Material is read aloud and highlighed, student can listen multiple times, then records his reading when he is ready
- Immediate feedback and corrections on reading and comprehension

BENEFITS FOR PARENTS

We make it easy for busy parents by offering flexible, affordable solutions that are convenient and online.

- Feel secure knowing their child is learning and practicing in the safety of their own home
- Watch their son or daughter practice and improve autonomously

HOW IT WORKS

Pick a book:
The student logs in either on a computer, or by running the app on mobile device, and picks a digital book from the library to read;

Preview the book:
Prior to reading the book, the student can have a preview of the book by browsing and listening to it being narrated by a human voice, and/or listen to individual words being spoken;

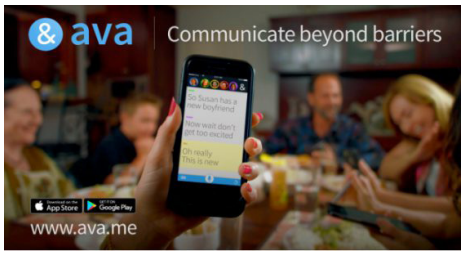
Read the book:
Once ready, the student can start reading the book aloud, which gets recorded and the app's speech recognition feature detects mispronunciations;

Practice problematic words:
If the number of miscues exceeds the acceptable level, the student is prompted to practice those words;

Take comprehension exercises:
a set of comprehension exercises are presented to be answered based on the book read;

LEARN MORE

Ava Shows You Who Says What



Finally a better solution for group conversations than hearing aids and lipreading.
In a group conversation, each smartphone with Ava is turned into a smart microphone for each person. Ava captions what people says in less than a second. Always looking at the best for your patients? Offer them the forefront of accessibility: many mobile ears and an artificial intelligence to complement hearing aids.

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Hearing aids, lip-reading or other assistive listening devices are not always enough for your deaf/hard-of-hearing patients to follow conversations. Restaurants, group conversations, spending time with friends, these are all situations that are challenging because. Not anymore – these situations are exactly what Ava has been designed for.
Ava is a mobile app that everyone (coworkers, family members, friends) download on their smartphone.
By connecting each other via the app, every smartphone becomes a microphone, and Ava captions what the group says on the deaf/hard-of-

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hearing person phone. They can then answer by either talking, or if they have a "Deaf" voice, typing. Ava can even voice the deaf person's answer

NEXT STEPS WITH AVA

- Ava is a state-of-the-art accessibility technology. Your patients rely on you to keep them informed about solutions that work for their communication issues. Stay at the forefront of innovation
- Ava is free, try and see for yourself: clickbelow to download the app.
- If you have questions, you would like to receive personalized support on using & explaining Ava, and/or know what program we have for audiologists, please leave your info below

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Enjoy 24/7 access to conversations around you.

STOP THE GUESSWORK. ENTER AVA.

Ava shows you what people say, in less than a second. Easy communication is only a tap away. Learn how to get started!

AVA CONNECTS FAMILY, FRIENDS & COWORKERS. TOGETHER, YOU'RE STRONGER.

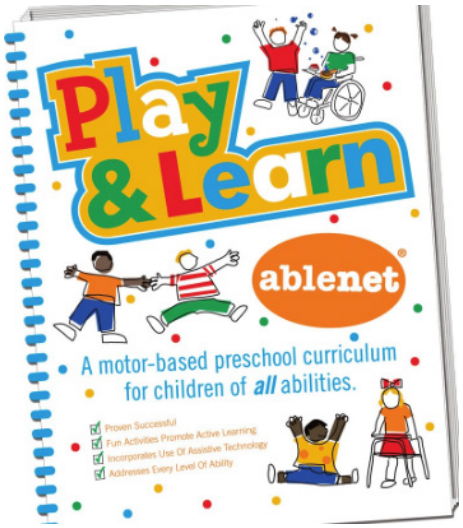
There's a smartphone in every pocket. Ava makes them work together, so you never miss a conversation again.

EXPERIENCE 24/7 ACCESSIBILITY. ANYTIME, ANYWHERE.

Last minute business meeting or family gatherings? A trip to the grocery store or hanging out with friends? Ava is always here for you, no matter when or where.

LEARN MORE

AbleNet Play & Learn



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