Assistive Technology Resources for Children and Adults with Disabilities

Closing The Gap Solutions

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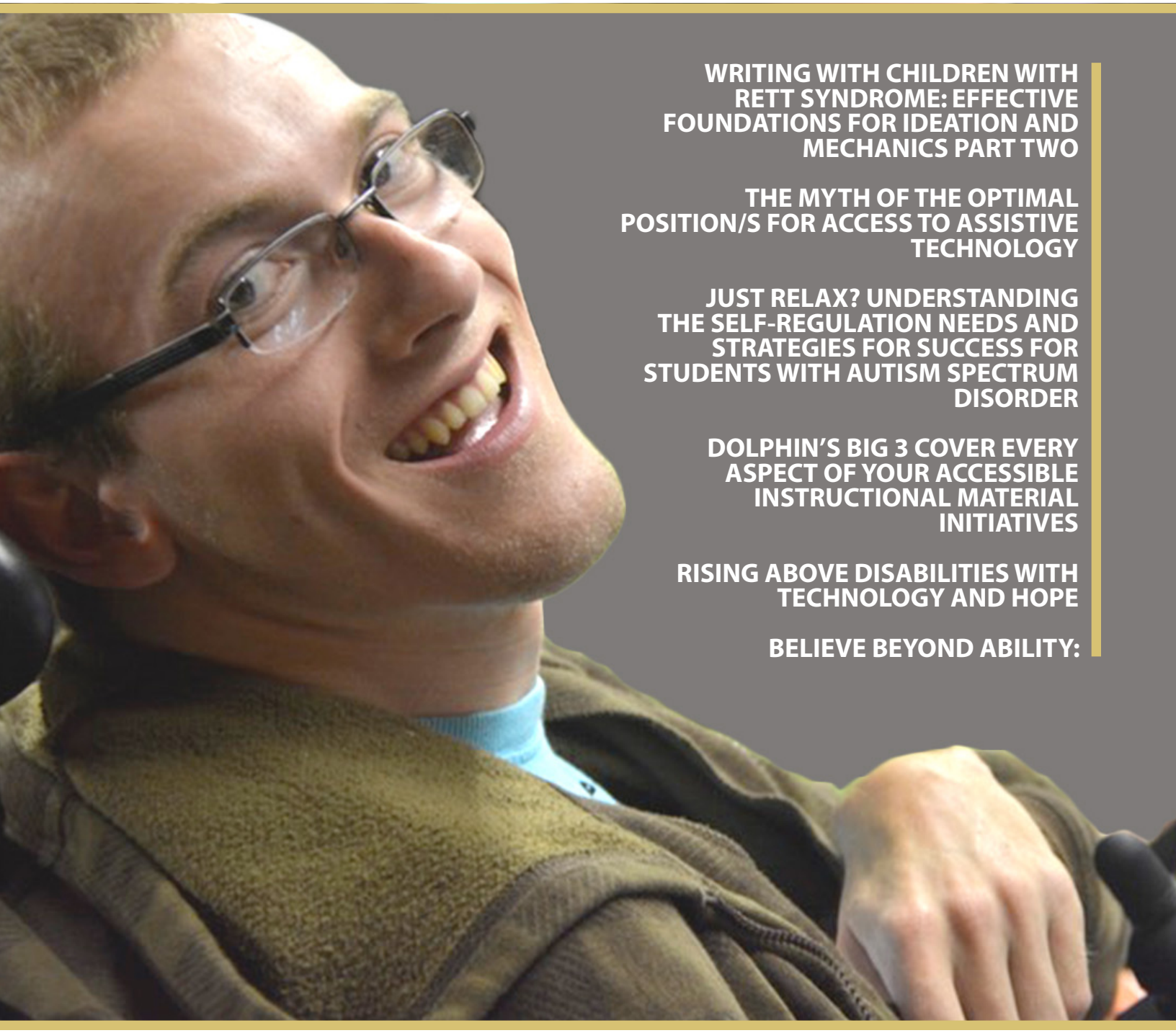

WRITING WITH CHILDREN WITH RETT SYNDROME: EFFECTIVE FOUNDATIONS FOR IDEATION AND MECHANICS PART TWO

THE MYTH OF THE OPTIMAL POSITION/S FOR ACCESS TO ASSISTIVE TECHNOLOGY

JUST RELAX? UNDERSTANDING THE SELF-REGULATION NEEDS AND STRATEGIES FOR SUCCESS FOR STUDENTS WITH AUTISM SPECTRUM DISORDER

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Please address all correspondence to Closing The Gap, P.O. Box 68, Henderson, MN 56044. Telephone 507-248-3294; Fax 507-248-3810. Email <info@closingthegap.com>; Website <www.closingthegap.com>.

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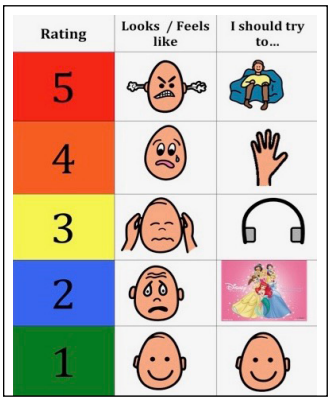

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Part Two: Writing with Children with Rett Syndrome:

Effective Foundations for Ideation and Mechanics

We pick up part two with the third Foundation for the Ideation and Mechanics of Writing.

DIALOGIC READING

Within the interaction between learning language and leveraging literacy to promote the learning of language, storybook reading is essential. While simply enjoying a good book together is important, the bonus of engaging in Dialogic Reading involves a more focused intent on engaging the child in the story telling in such a manner that you scaffold them from just actively listening to expertly retelling a story.

Dialogic reading, first described by Whitehurst et al. (1988), is a particular type of shared book reading that includes strategic questioning and responding to children while reading a book. The technique involves multiple readings and conversations about books with children in small groups. Over the course of the readings, children are encouraged to become the storytellers. The adult prompts children with questions and careful responses that encourage children to say more. Systematically studied for more than a decade in a variety of populations of children from 2 to 6 years old, dialogic reading has a positive effect on oral language development, a cornerstone of emergent literacy. (Kleeck, Stahl, and Bauer 2009)

According to Whitehurst, children are prompted by questions, their verbalizations are expanded upon and they are praised for helping to tell the story. Over time, the standards for their verbalization are extended as we model more and wait and encourage more production in line with Vigotsky's (1978) zones of proximal development. (Arnold and Whitehurst 1994.) Readers are encouraged to go to www.gettingreadytoread.org and search for Dr. Whitehurst's videos on Dialogic Reading.

When I engage my kids with RTT in Repetitive Dialogic Reading, they begin the process of moving from minimally commenting, describing, directing, etc. to taking over the telling of the story. I've found that excessive questioning, while helpful for verbal and neurologically typical children, tends to cause shutdown for our kiddos with RTT. Modeling and expanding on their utterances while recognizing their eye-point to pictures in the books and their communication with their system is maximally supportive and effective in encouraging language expansion and story

SUSAN NORWELL M.A., ATACP, Susan is a teacher who has worked with a wide array of students, including those with Rett Syndrome, Autism and Multiple Disabilities for the last 41 years. She has spent the last 31 years in private practice working primarily with children with Rett Sydnrome, Autism and other complex disabilities.

Susan is Co-Founder of Rett Univerity which represents a 5 year dream of being able to provide systematic training for parents and those working with individuals with Rett Syndrome. She is thrilled to see this dream actualized with GirlPower2Cure and envisions people being able to more consistently unlock potential for individuals with Rett Syndrome in the future!!!

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retell. Following their lead and interest and expansion is essential for lessoning the effects of their apraxia and ensuing anxiety. Repetitive reading of the same book takes on even more importance for the AAC user with RTT. On any given day (or moment for that matter) their Apraxia can block a response they might make. Repetition (and that does not mean still reading Brown Bear, Brown Bear when they are 13) allows for more chances for expression increasing the odds over time of them revealing what their true understandings are. Also, repetition gives them multiple experiences within their language system to recognize where the vocabulary is as we model it, work to locate it with their eyes on their own, build the semantic understanding and expression of needed vocabulary to express their own idea and practice the navigational skills they will need within their system to be able to build narratives and story retells which are the writing foundations discussed next.

While there continues to be much discussion in the field of AAC around core vocabulary versus topic specific grids, I've found that using story specific grids in the beginning can really support girls with RTT in not only communicating effectively throughout the story, but in their ability to retell it. Building memory skills related to past events is more difficult for girls as they have not initially experienced the earlier task of motor memory, in fact motor memory is significantly made more difficult due to the Apraxia that is the cornerstone of RTT. Remember the image of the scale from Part 1 of this article – the higher the language/cognitive demands the lower the motor demands to insure success. (I mistakenly only gave credit to the creator of the symbols used in that graphic and not to Judy Lariviere for designing the graphic itself. I am so happy I have a chance to correct that.)

In the grids above (FIGURES 1 & 2) you can see how easy it would be to just stay on page one to talk about and retell the story. The second page adds in comments and questions that are also important as

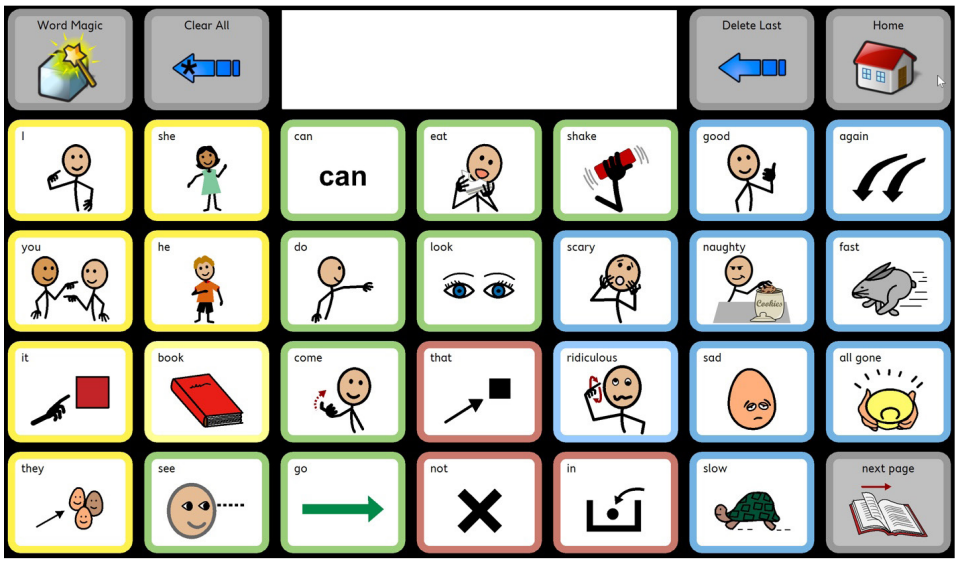

Figure 1:

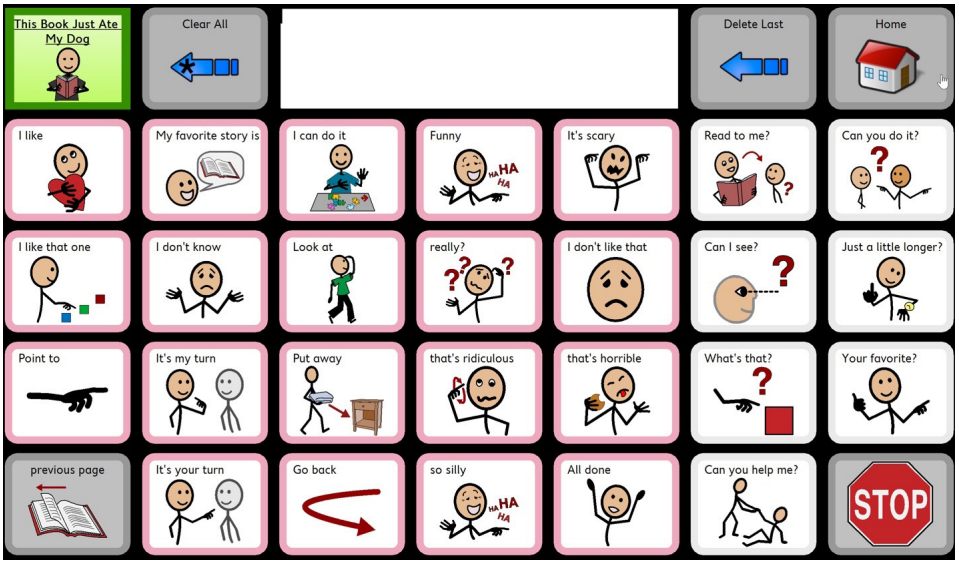

Figure 2: *(Figure 1 and 2 Grids created in SonoFlex within Communicator a product of tobii-dynavox using Symbolstix Icons Copyright SymbolStix, LLC. 2017. All rights reserved. Used with permission. Grids initially created by Kristi Craddock and adapted by Susan Norwell)*

our AAC users tend to be weaker in asking for information. In addition, even though this is a story-specific grid, in my adaptions to the original I strove to keep core words as the base. For example, even though the story uses the work "stroll" I have the core words "go" and "slow" to help the child not only learn the meaning of stroll but to be able to express it without having to have the specific word "stroll" which is unlikely to be a part of someone's language system. This does point to the necessity for learning to read and write, though, as someone wanting to express that specific word with even minimal phonemic skills could say "go slow" and type "s" and a good communication partner could figure out they meant "stroll".

On the other hand, once a child is slightly more experienced within their word-based language system, Dialogic reading is an excellent platform for moving the discussion about the book between core vocabulary and fringe vocabulary so the kiddo with RTT practices navigation within the context of that conversation while learning more robust communication options. The grid (figure 3: Page 5) will help

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explain this transition better than words. The grid pictured below (for the same book discussed above) demonstrate moving a child from the story specific grids above to using their core, fringe and contexts. I typically set my kiddos up within SonoFlex to understand the power of the contexts within that program. I help them to learn to predict which categories they might need to communicate around a given activity. In *This Book Just Ate My Dog*, I would talk about reading a new book and initially do a think aloud about which context I would use. I would draw their attention to the fact that the book ate the dog. I again think aloud about eating and later would pause to offer them choices between contexts to use. I pull in the cars context because I know this naughty book does eat a few vehicles, though I would not do a think aloud on this on the first read or I ruin the surprise. Each button on the right reflects a context, opens to three more pages related to that context. Only the main core page is pictured below. This furthers the goal of Dialogic reading in increasing their language and ability to retell a story while strategically teaching them how to do this and gradually releasing the support.

NARRATIVE CONSTRUCTION

Individuals with RTT need to be able to retell their experiences but without focused instruction, access to robust language choices and lots of modeling it will not happen. The research is clear as to the importance of narrative construction for social success, academic success and self-concept development while being equally clear on how little it occurs for AAC users (Proctor & Zangari, 2009). While many professionals suggest waiting until AAC users have enough language skill to begin narrative construction, I disagree and think we need to be developing this skill based on the research that shows kiddos as young as 18-month-olds to use their gestures and what few words they have, to convey a past experience. I believe waiting is deleterious for our individuals with RTT. Instead we should assume competence and grab their individual words, eye-points and gestures to help interpret and shape their narratives as we would for any speaking child.

I've found various strategies to be successful in developing narrative construction with girls with RTT. Story retell is an easy way to begin as both the partner and student are interacting around the same story. Repetitive reads of a favorite story like the one below with Jane, allowed for her to really get to know the language needed to interact with the story which can then be utilized to retell the story. A short scenario involving Jane will help explain.

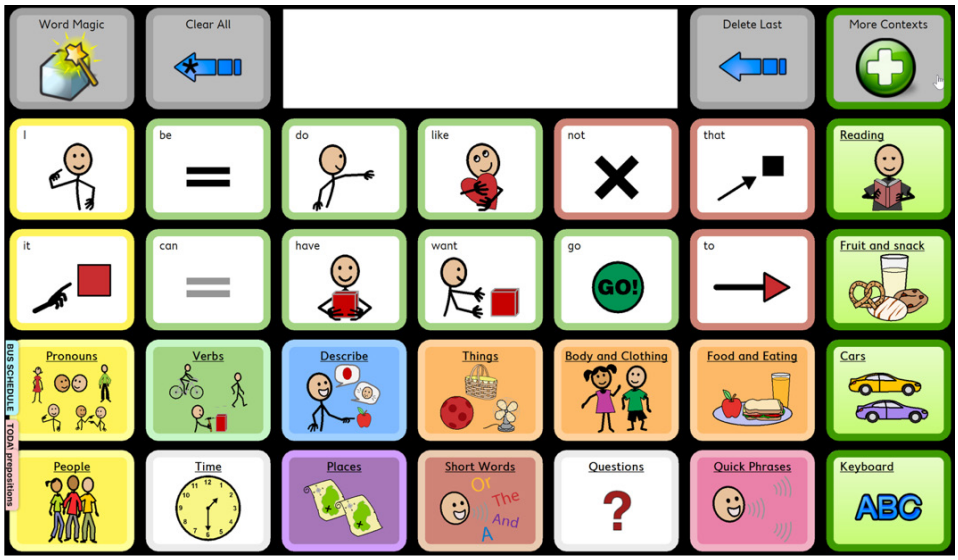

Figure 3: (*Grids are a part of SonoFlex within Communicator a product of tobiidynavox using Symbolstix Icons Copyright SymbolStix, LLC. 2017. All rights reserved. Used with permission.)*

Jane's Early Childhood class was reading The Three Bears and asked me to create a board to go with it. Since she would be reading the book in a group I decided to go with a story specific board to make it easier for her to join in with less navigation on her Tobii. The two boards are shown below. The original that she used at school during repetitive reads and the "upgrade" she used with me to talk about the books we read that were based on the original book, including: The Three Snow Beas and Goldilocks and the Three Dinosaurs. She got story practice with the original book and additional practice was provided with the "upgraded" grid as we talked about what was the same and different about the new books we were reading. These grids were set as additional contexts within SonoFlex so when she was eating or sitting with her family she could access them to talk about the book socially. After each read, I would put the book away and we would retell the story together while I gradually decreased my scaffolding over time being sensitive to her apraxia. See Figure 4 and 5.

Additionally, at the end of a session, I ask kids what they want to tell their family and friends about. I offer them choices of things we did and they make a choice. In the beginning, the "building" of the narrative is highly supported utilizing their comments on the device, woven with answers to Yes/No questions and some single words. Their story is written down for them to see and then recorded into a page set I designed (pictured next page, Figure 6) so they could easily retrieve the story later to retell. Usually, the moments they need to tell a story are time dependent: dinnertime, show-n-tell, etc. Stored messages they have helped to construct are quite meaningful and when easy to retrieve are used consistently.

At the same time, I redesigned my reading grids within the famous "Pati/Judy Pages." The original language system was developed by Pati King-Debaun to support complex kids in learning to communicate. Her dynamic book was quite successful and Judy Lariviere created the pages in

Figure 4

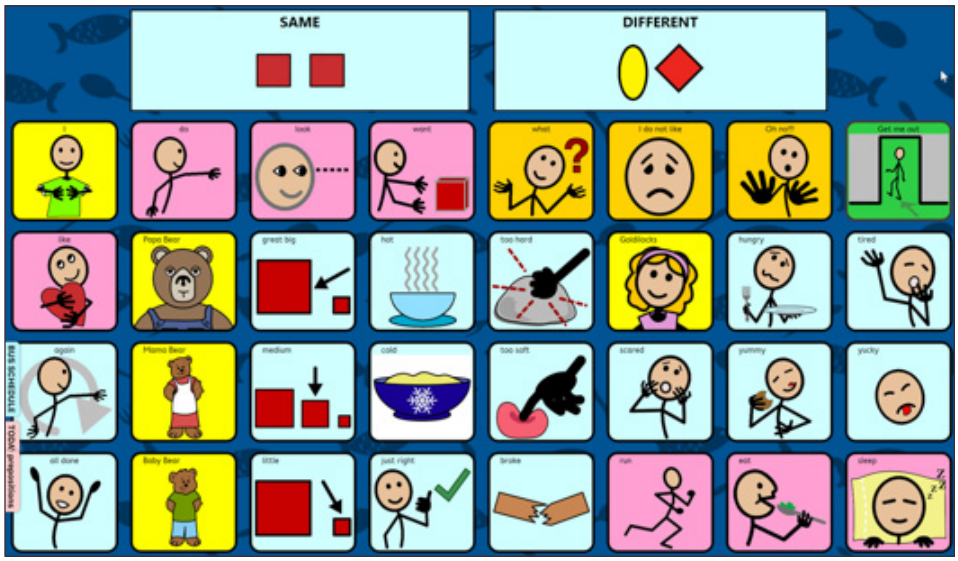

Figure 5: *(Figure 4 and 5 Grids were made in SonoPrimo a part of Communicator a product of tobiidynavox using Symbolstix Icons Copyright SymbolStix, LLC. 2017 by Susan Norwell. All rights reserved. Used with permission.)*

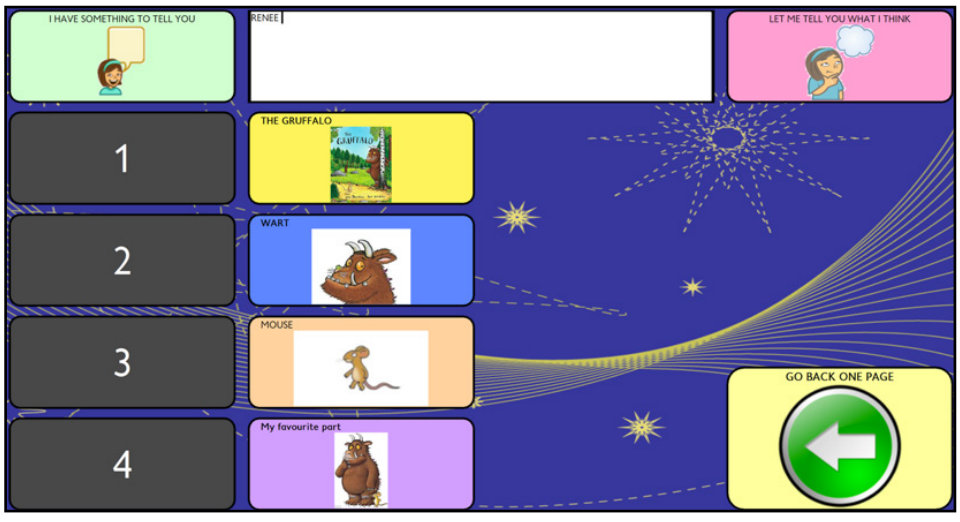

Figure 6: *(Grids are a part of SonoPrimo within Communicator and Tango Symbols products of tobiidynavox redesigned by Susan Norwell. All rights reserved. Used with permission.)*

TobiiDynavox Communicator using her effective 12-grid layout that really supported easy communication for kiddos with RTT. The pages I added are pictured below and served two purposes. See Figure 7.

I loved the ability to expand the comments by separating them out into good/bad but more essential was adding the top portion to talk about what had happened, what is happening and what will happen. It was an easy way to introduce past, present and future and signaled the recall of something from a story and the predicting of what might happen next. The second more important purpose was my ability to use them to model narrative construction. I typically start each session with a "chit/chat" time, a free talk time to build conversation skills. I utilized these grids in my narrative to say: Something happened, it was awesome and then go on to use other areas of their device to give a few details. The beginning piece of indicating it happened in the past, was a key indicator that a story was coming.

I would urge parents and professionals to not give up on this essential component of both writing and communication in general. It's so essential that I designed an entire course on www.Rett-U.org just on Narrative Construction. For six months, I utilized the grids (figure 7: Page 7) and worked on scaffolding story retells and "session retells" with Jane. For those same six months, I utilized the same grids when engaging her in Dialogic reading and in my own narrative constructions and story retells. She never once utilized the top grid – never even imitated my use. Then one day she came in, navigated from her Homepage to the Pati/Judy Pages and said:

Jane: *Let me tell you what I think.*

Me: *I can't wait to hear.*

Jane: *Something happened.*

Me: *Really? I am so excited to hear what happened.*

Jane: *It was fun!*

Me: *Wait a minute, something happened and it was fun? I am so curious.*

Jane: *(navigated back to HOMEPAGE and then to MY STORIES - her pre-recorded*

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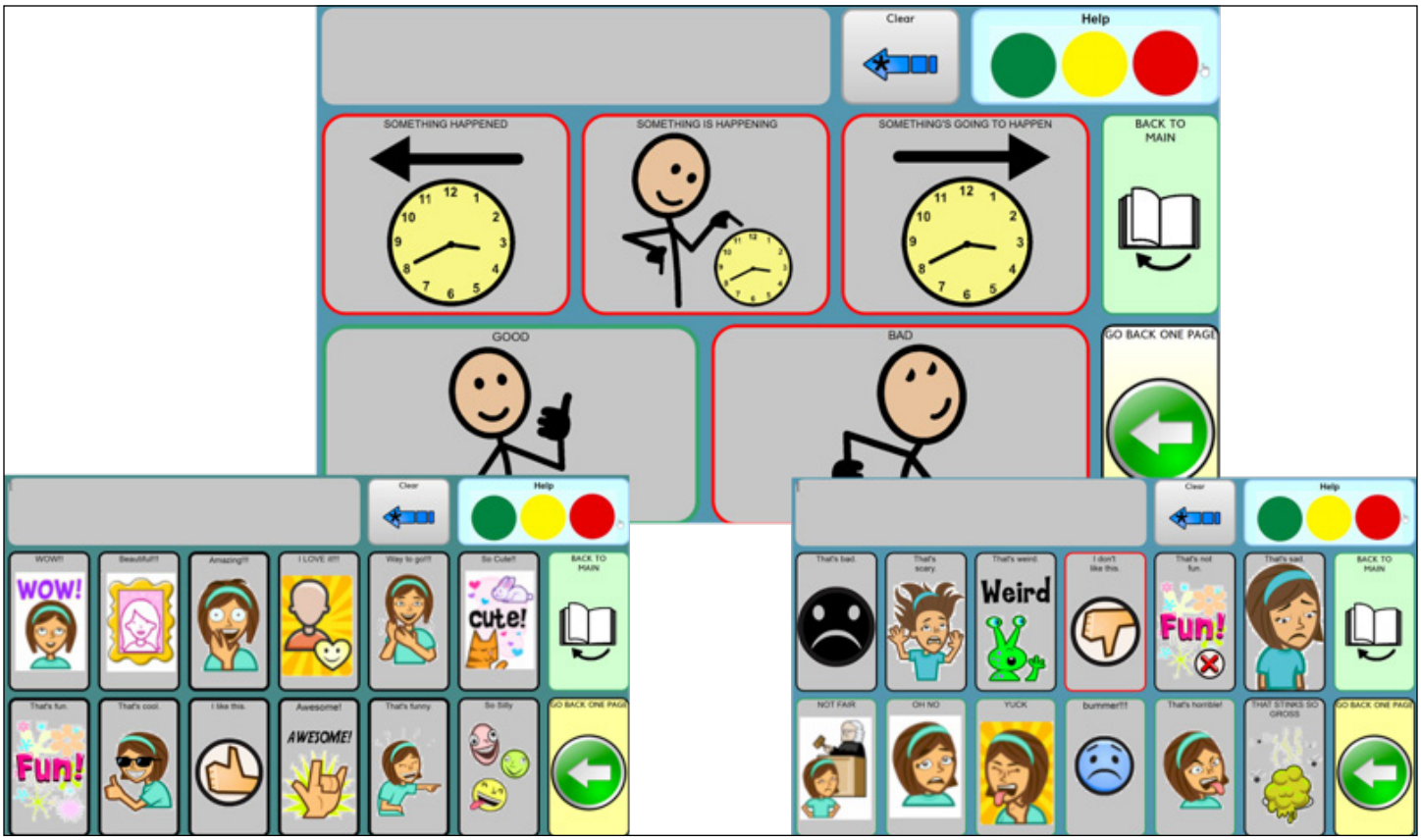

Figure 7

narratives)

I read the Big Green Monster.

Me: *I remember reading that book with you and it was so fun.*

Jane: *(navigated back to HOMEPAGE and to her ABOUT ME page.) My sister's name is Amanda.*

Me: *Oh my goodness – something happened and it was so fun. You read Big Green Monster with your sister Amanda!*

It should be noted that each time I restated what I understood she had said, she looked at me with a huge smile for "yes."

I am not sure who was more delighted after Jane's story. It certainly opened the door to many such experiences. I followed the same strategies I was reading in the research: modeling with her device, topic extension, repetition, clarifying questions, persistence (6 months of no response), prompts for unshared experiences and information-rich feedback (McCabe and Patterson (1991).

While the research on narrative construction is extensive for children who are verbal, it's very limited for those who use AAC as a primary means of communication. Initially, my granddaughter's beginning narratives and my desire to see my kiddos with RTT do the same, inspired me. The work of Patti Solomon-Rice and Gloria Soto 2011, though a single case study, highlighted the success of narrative construction with an AAC user utilizing strategies first discussed by McCabe and Patterson. Their conclusion was that the instruction of narrative construction should not be ignored and urged SLP's to hop on board. I totally agree, with the exception that is should not be just SLP's. Instead, all of those living and working with kids with RTT should not only have narrative construction as a goal but also get skilled in teaching its components. Telling a story translates well into writing a story.

MODELING OF WRITTEN LANGUAGE USING THEIR PEN

While modeling of language is the foundation for effective AAC learning, our students with RTT also need to see writing modeled using their pencil and not just ours. (Hanser & Musselwhite, CTG 2013).

I liken it to our speaking with symbols. As hopeless as it is for children to be spoken to endlessly and yet not be spoken to in their language, the same would go for writing. I began to coach teachers in classrooms and parents alike to add writing with the child's pencil (for my kiddos with RTT it was an ABC Flipbook) into their daily routines.

Kiddos included in kindergarten would benefit from seeing one word for the week spelled in front of the entire class with their ABC Flipbook (pictured next page, Figure 8). It serves two purposes: honoring the child with RTT's system for writing and making for a "new normal" by integrating different means of writing within the classroom in a natural way. Teachers often "bless" books by reading them, they can now "bless" different forms of writing. I consulted to a great school in the UK where the Level 1 teacher put huge Yes/

No symbols at the front of the class. She occasionally asked the whole class to use the symbols to answer questions. She got the benefit of seeing many kids' answers all at once, versus just the child called on and the kiddos got to experience what it is like to be nonverbal and dependent on symbols to communicate. Likewise, a teacher can teach sight words using a CoreWord Flipbook (see Figure 9) by showing where they are located on the Word Wall and where they are in the CoreWord Flipbook. A UK Foundations 2 teacher had the ABC Flipbooks and Coreword Flipbooks at the writing centers for all the kids to use. Even if they wrote with a pencil, having a good model for the letters and correct spelling of the Sight Words was invaluable to the entire class and not just for the kiddo with RTT.

PURPOSEFUL INSTRUCTION IN PHONEMIC AWARENESS AND DECODING

This section could fill an entire article, but suffice to say children will stay at the scribbling stage of writing if they do not receive systematic instruction in the cornerstones of solid phonemic awareness: rhyme, letter sounds, print awareness and print processing. Once they are ready for conventional reading, then systematic Word Study involving both sight word learning and decoding is essential. I believe the most authentic assessment of the success of a decoding program is a child's writing.

When I began to pair free writing with instruction in phonemic awareness and later conventional decoding, I could see the effects of the latter on the former. Kiddos with RTT who use only beginning letter sounds to write an entire word were those same kids who were solid in their individual letter sounds, but had not yet begun to put them together to make words or to decode words in the Word Study Component of their reading program. As they began to engage in Making Words activities (Cunningham, Hall 2007) the girls invariably started to write words that had beginning and ending sounds and then

Figure 8

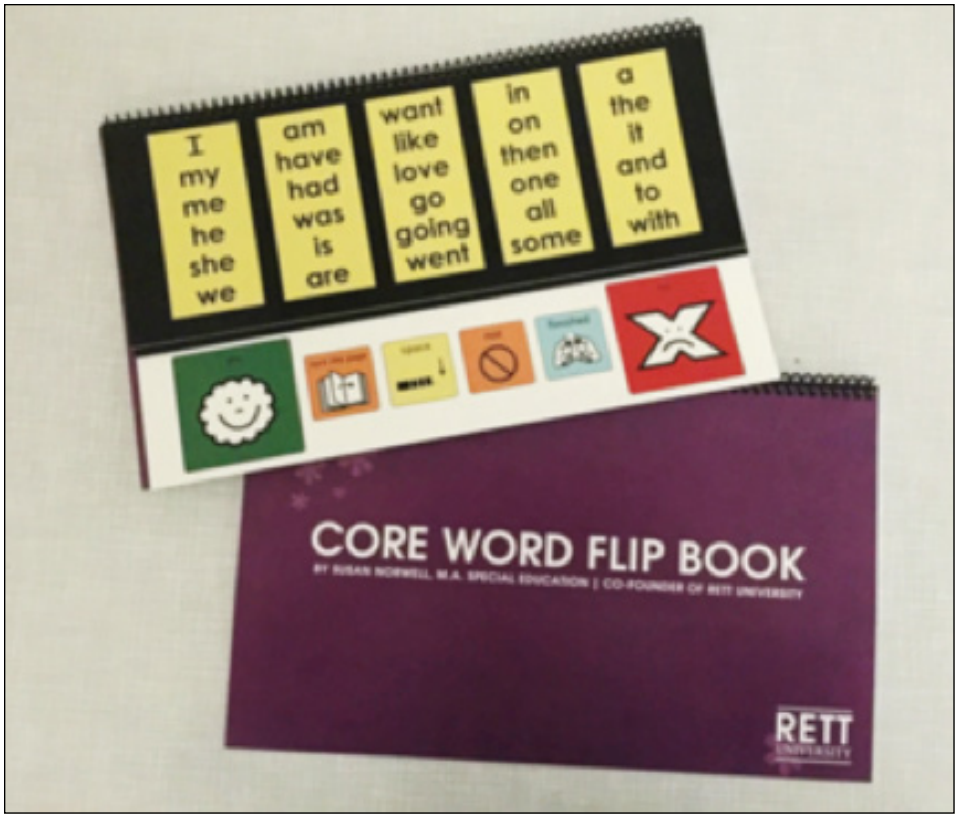

Figure 9: *ABC Flip Book and Core Word Flipbook © Copyright 2015. www.rett-u.org all rights reserved. The Picture Communication Symbols ©1981-2015 by Mayer-Johnson LLC a tobiidynavox Company.*

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added in vowels. They followed the same pattern that neuro-typical children follow when given good writing and decoding instruction. Writing does not ever stand-alone. It's part of a well-rounded literacy program with one component affecting the next. Of paramount importance is the knowledge that students with RTT can and should learn to decode and encode. They should not be relegated to just a rote sight word reading vocabulary due to the fact they are nonverbal.

I have found Making Words activities to be an essential component to the Word Study component of reading and an effective strategy for developing decoding skills related to reading and encoding skills related to writing for my students with RTT. It's easy to adapt for the motor limitations in RTT and does not demand the verbal response that many other decoding programs do. Our kiddos can learn to decode if they are given a program that allows them to make and use the sounds in their head to accomplish the same goal as everyone else – to learn to decode.

MULITPLE EXPEREINCES LEARNING TO USE THEIR "PENCIL" – ERRORLESS WRITING (AKA SCRIBBLING)

An errorless experience with their writing tool is essential for the student with RTT to learn to write. If the learning of the tool is combined with the learning of the content and worse yet, assessment of the content, it will not succeed.

Little ones with good motor skills pick up a pencil at 18 months and scribble. My kids with RTT and their families hear me preach the same thing for them. They need writing time each day and not to produce words that are recognizable or for us to correct, but just to write. I've found music to be a great way to introduce and teach the letters while they learn the mechanics of how their writing tool works. Here is the sequence I find most successful in the long run – in other words it supports their learning while keeping their enjoyment and desire to write high! The last thing we want is to have our kiddos with RTT shutting down when presented with the ABC Flipbook.

1. Learn the motor "plan" first. See the discussion on this in Part One for a review of its value.
2. Learn the "content" second.
3. Use the tools to "choose" fun ABC songs.
4. Lots of scribbling – free writing with full ABC Flipbook written down for them to see.
5. Write first letters of names together - add to it.
6. Take photos of their writing to see their progress.

Children will learn the motor plan first when we model how to use the ABC Flipbook to write something ourselves. Always do a talk out loud while you are deciding what letter to pick so they can hear and see your plan. Remember kids with RTT are very strong auditory learners so what you say is just as key as what you do.

"MMMM let me think. I like that song about the letter B. I remember B is for Boogie. Let me see. A..B..C..D.. yes or no." (I point to each letter as I say it and then point to the yes and the no.) "Yes I want one of those letters, A……NO B…….YES," and then I would play the B song.

Children really like the StoryBot ABC songs (except for one – sorry Ésme). They are available as an app in the iTunes store and some are on YouTube. There is a lot of alliteration in the songs that helps to create the "earprint" for the sounds that nonverbal kids struggle with as they cannot produce and practice the sounds themselves. Hearing the sounds in songs seems to help them learn them without even knowing they are working.

The songs have helped countless kids with RTT to learn how to use their ABC Flipbook so they can go on to writing quickly. I just give them time to write and encourage schools and parents to do the same. No judgment or editing please. It is function over form as a rule for just about everything except brain surgery and even that they practice on a lot of dead things before they get to a live person. Here is where the lovely surprises always happen. I set out to write for the first time with someone expecting a bit of a scribble and right then and there they write something that is stunning.

An 11- year-old in for a consult from Australia when asked what she liked about her day in Chicago the previous day wrote: I love come (corrected to coming with Partner Assisted Scan) to the (CoreWord Flipbook) riv (ABC Flipbook) – when I asked if she meant river, she said "yes" and her mom started crying. The day before she had loved the River Walk they had experienced.

Writing reveals a lot of stored up knowledge that has not been tapped and gets to questions and experiences that could not be shared any other way.

AUTHENTIC WRITING EXPERIENCES

It's important to acknowledge that none of the foundations are sequential or are benchmarks that need to be attained before a student writes. I start scribbling with two-year olds with RTT as soon as I meet them. Playing with the ABC Flipbook and the StoryBots is fun, engaging and gets them writing like any other two-year old. They could sign a birthday card and just choose a string of "A's" and they are writing.

Overtime, I have seen multiple things happen as all the foundations converge into more conventional writing. I see kids with RTT choosing words on their device while working hard to create text with their ABC and Core Word Flipbooks.

The child (pictured next page, Figure 10) when offered the choice between her CoreWord and ABC Flipbook was very definite with each choice. She proceeded to write:

She *(CoreWord Flipbook) have (CoreWord Flipbook)* **bad** *(from her device)* **sindro** *(ABC Flipbook)*

When I asked her if she meant "syndrome" I became her "word prediction" and I admit to feeling emotionally compelled to help her. The fact that everyone

in the room was crying might have also had something to do with it. Julianna is an amazing young lady who loves to write and I told her someday that would be the title of her book that would help us all understand what it is truly like to live with RTT. This is an example of free writing. I did not set the topic, Julianna just wrote from the heart. It's evident from her writing that all the Making Words activities have made her writing very easy to understand. See Figure 10.

Kids with RTT need multiple days and maybe even weeks to write full sentences and small paragraphs. In a third-grade classroom that was in the thick of a unit on the Rain Forest the kids were told to write about a time they landed in a Rain Forest. My first-time writer grabbed the traditional "Once upon a time" opener and then wrote:

I (Coreword Flipbook) **had** *(CoreWord Flipbook)* **qween** *(ABC Flipbook)*

I was sure this is what she wanted but didn't get the connection to the rainforest until I went home with her to share with her family. Her sister told me her favorite show was about two queens in a forest; a good queen and a bad one. The next day I encouraged her to write more as I needed to know if it was the good queen or the bad one. She wrote:

She *(CoreWord Flipbook)* **is a** *(Coreword Flipbook)* **good** *(ABC Flipbook) and later edited out the "a."*

Writing is multi-level, so kids can write fully included with little adaptation except their "pencil." While others may be writing a paragraph, their goal might be a sentence. I find the girls benefit greatly from the mini-lessons from the general education teacher and then can use what they learned as they build their writing. I have seen mini-lessons on using juicy adjectives. We pull a single sentence from their story and figure out a place to add one in and they write it.

I have kids now that are well established enough in their decoding skills that I can introduce word prediction via the computer. They also must be able to hold their own idea in their head, as I really don't want them "scribbling" with words in word prediction – if they still need to scribble, they need to use just the full alphabet. (The exception would be an on-screen keyboard with word prediction. They can scribble there all they want.) But once they are putting multiple ideas together, I introduce word prediction in combination with their ABC Flipbook and if they are ready, they show selectivity in the words they choose. This aspect really pulls all the foundational work together to not only allow for their own ideation, but a faster rate of expression as their decoding ability allows them to choose letters that are accurate enough to get them to the word they want as it is predicted.

Figure 10

Jane read <u>One Stubborn Horse</u> and was asked the open-ended question: How do we know the horse was stubborn? She wrote with a combination of her ABC Flipbook and a Clicker Word Prediction Keyboard that I adapted. As she gave a letter, I entered it into the computer. She wrote:

He tcd (tickled) the horse. He did not move.

He begged the horse. He did not move.

Writing gave her the ability to write her answer. Being relegated to just multiple choice answers never gets to what the child is thinking on their own. Writing is the most challenging activity my kids with RTT will face as it really integrates so many skills that singly can be difficult. But when a child has the advantage of playing out their own ideas, having rich language to discuss stories, has built sequences in play, are nurtured in their narrative construction, see people important to them writing with their pencil and get lots of practice at using it, their writing is reflective of their ideas and grows and develops beyond imagined. If our kiddos are to be fully educated and fully communicative, they need to learn to write.

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OTHER RESOURCES:

ABC Flipbook and CoreWord Flipbook Link:

https://shop.girlpower2cure.org/collections/rett-university/products/flip-books-by-susan-norwell?variant=5223287553

Courses on Writing and Narrative Construction with Video Examples:

http://rettuniversity.org/online-training-courses/

Dynamic Communication Book by Pati King-Debaun

http://creativecommunicating.com/creative-communicating/?product_cat=the-dynamic-communication-books

Dynamic Communication Book in Communicator by Judy Lariviere

http://assistivetech4all.com ■

The Myth of the Optimal Position/s for Access to Assistive Technology

INTRODUCTION:

optimal adj. Most favorable or desirable: optimum.

optimum n. The best or most favorable condition, degree, or amount. -adj. Most favorable or advantageous; best. (The American Heritage Dictionary, 2nd college edition,p.873).

We all need to be reminded of what exactly we're talking about or what we think we mean when we throw around "words." The "optimal position" is a phrase disccussed in this world of assistive technology (AT) as if it was immediately understood. We should be concerned about this. As AT specialists and facilitators, we are looking for the "optimal position" but rather how do we go looking for it and what we actually think it is when we "find" it. The key words in the definition above are most and best. Why? They presume that there is a continuum, process and a choice of more than one. They presume a first, an initial, another, a better, and then, somewhere later, after experience and time, a best. How come when assessments are conducted with students with AT needs do we look for best, first? Why do we decide that optimal is best after single, initial experiences? Or after repetition of singular experiences? Where is the process? Where is the practice? What is supposed to be practed?

As an AT specialist for over 30 years and an occupational therapist whose clinical practice has focused on children with complex bodies, my primary work remains working on-site to observe and assist teachers and therapists in their search for the optimal control site, the optimal switch position, the optimal mounting position and/or the optimal seating position for a particular student. Upon these consultations, the assessment process that is unswervingly followed is one where the students have been asked to perform singular tasks, repetitively, in the search for consistency for optimal positioning. Yet, this same student is also described as a student who has had very little if any real experience with the activity that is hoped to be managed, and little experience with any switch to control any machine, who has also had little experience with any partner shared communication, or with any specific communication device, and who is primarily observed within a particular and specific seated position.

Looking at access and its "success' or 'consistency" remains the number one problem teams struggle with, when working with students with complex bodies, and their future use of AT.

However, access to a single piece of equipment cannot be assessed in isolation. Nor can a "switch" or "particular" switch be identified with a specific body part without task engagement. Task engagement is not picking one out of two choices, nor is it what is the student's favorite music.

When working with children in education, there are two primary goals all of us must support for learning to occur. First we must create opportunites for children to learn. No single teaching strategy or therapeutic technique produces learning on its own, learning occurs when opportunities to learn have been created within the student's environment.

KAREN M. KANGAS OTR/L, Nationally Certified and State Licensed Occupational Therapist; Seating,Positioning, and Mobility Specialist; Assistive Technology Specialist, Adjunct University Faculty, Clinical Educator; Consultant, 1 Beaver Road, Camp Hill, PA 17011; Email: kmkangas@ptd.net

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The second goal is the recognition that school must prepare students for life. Life preparation requires skills of all types in many differing areas of education and can occur in different types of fields. Most frequently, public education can be observed to prepare students for college with the presumption this will be their life, while it is simply one more step in life's journey. The development of Life Skills Curriculum was created in special education to prepare students for life who did not appear to be students who could go to college, nor participate in the available vocational tracks.

For students with complex bodies there are challenges that remain, as we learn how to support literacy, independent communication, independent writing and support inclusionary education within our schools. Many of our students come to school with a small repertoire of independent control, with an even smaller repertoire of independent experiences. When the field of AT was embraced by our society and schools, finally, it was thought that all students would readily demonstrate their skills.

For those students who were not able to demonstrate independent skills, we entered with "access" as a first learning process we expected to be demonstrated. This paradigm of learning is a myth. All children learn, grow and must have experiences they can assimilate, accommodate and then generalize to develop any type of learning skills.

In western civilization we do not test children first, with access to an activity, we teach children within an activity that the child experiences with us. As the child experiences the activity, they begin to recognize the beginning, middle and end of the activity, and then begin to participate, and subsequently, control the activity. This takes time, experience and years of practice. A two-year old will tell her parents she can manage a chef's knife as she helps with meal preparation. We know she can't but we find ways the child can continue to participate, she can pour, mix and only cut with an adults's help.

Is this how we work with our children as we introduce AT to them? Do we recognize that the assistive technology itself, (the actual hardware and software) is, unto itself, not the real activity? What is the real activity? The real activity is that the child would communicate independently, learn to read and would be able to manage her body while engaged in an activity. The real activity is to be able to with with friends, and learn collaboration, and cooperation, but also to produce real effort at tasks. What tasks? What about the computer, what parts, what activity do we expect through what software for the child to learn and manage? Its not the computer, instead it's communication, writing, managing a schedule, develoipng a journal, managing social media. The hardware and software is only a method by which these real activities of life occur. Managing the harware and software to get at the activity needs to be carefully supported, not tested, but rather included.

Efficiency of access has little to do with switch hits. So switch decisions are also not where a primary emphasis of time should be spent by teachers, therapists and AT specialists. Engagement in activity is how learning occurs, how access develops over time and how how attention and participation extends in time and competence.

These are the challenges still facesd, the student's actual body position, activity position and activity configuration are critical. The activity and its configuration must be created to allow the student to understand and engage in it. AT should support this activity, not BE the activity. It needs to support activity, and then access needs to support the AT.

When anyone wants to learn to play the piano, they are not "wanting to play the piano" they are actually wanting to play a song. The piano is the machine which will produce the song, but the song is the real activity.

If we want to assist students in task engagement, the first thing that must occur is a change in body position for the

activity. This can mean the student needs to come out of the chair which brought the student to school, or altering the student's position while in the chair, or finding another piece of equipment which will work with this student in a specific activity.

Students with complex bodies have perceptual motor inexperience, mobility inexperience and it's a direct challenge for them to even focus on an activity, for task engagement. Learning to perform true read a loud sessions can be a wonderful start. Reading aloud is critical for task engagement. How the child interacts with this activity has everything to do with body posture first. Let's look at Alex, (photo one). This is how Alex is most frequently observed when on his own, within his seating system. When the read aloud is first taken to him, and time is spent with him, the read aloud also includes a switch activity. This switch access is included, to repeat the refrain of the story, but the switch is brought to Alex, at the time the story expects the refrain. The switch is placed where his head actually is located and can't help but touch the switch. After all, the importance of this activity is the story, hearing the story, paying attention to the story, and then participating in the story, to bring home the enjoyment of the story. The story is then brought to

the computer and Alex's body position is altered by sitting on his teacher's lap. The story is now being experienced by being read and heard at the computer. This is a process, not simply a test of how many switch hits a student would use to turn a page. Look at the difference in Alex's posture and task engagement.

NEW PARADIGMS WE NEED TO EMBRACE:

1. **Access sites (body sites) develop from interest, intention, and experience with activity, not in isolation.**
2. **Consistency is not what is needed; interest, intention and attention are needed.**
3. **The activity must be known, with the beginning, middle and end obvious.**
4. **Repetition of the activity will bring anticipation of motor use and support its accuracy.**

The student needs to be "brought" to the activity. The activity needs to become known and familiar, not just shown to the student. The beginning, middle and end of the activity must be made obvious. The activity itself is not "reading aloud' but rather reading two sentences. Stopping and moving the child's body slightly. Talking about what was read, and then stating, "Let's read some more. I wonder what happens next?" and the shared reading activity becomes a participatory one, with the teacher and therapist guiding the lesson. The switch is added to it, sometimes to turn a page, or to play a refrain of the story. Again, the AT equipment is added to the story and managed by both the adult and child, without expectation of a "test" but instead with observation of the student's attention and engagement.

5. **Motor learning requires: no verbal prompts, a mental rehearsal and specific feedback at activity's end.**

One of the hardest things is to not talk while a child is having to manage the AT itself. We verbally prompt, we add "good job" while not realizing this actual "talking" is distracting to the student's ability to perform. When the student is asked to manage the access to an activity or is trying, do not talk. If the student appears to be having some difficulty, simply ask if you may help. After the activity is completed, tell the student what you saw the student actually do such as "I saw you turn the page of this story with a switch." or "I saw you really taking your time, I saw you thinking about what to do."

6. **The switch is not the activity.**
7. **Electronic (zero pressure) switches vs. mechanical switches for AAC, computer, mobility (automaticity and transparency).**
8. **Don't use automatic scanning first, 2 switches are needed, or step scanning.**

No matter what happens with the switch, the switch itself is not the activity. How many times a student hits a switch is not indicative of anything, and certainly not indicative of their ability to manage an activity. Motor mistakes are what happen, and only from having a lot of experience, a student will make less of them, or lesss frequently make them, or be able to identify how to correct a mistake.

For management of an AAC device or for driving a powered chair, or for managaing an onscreen keyboard with scanning, electronic switches (sensors) must be used. These require no force and immediately set up transparency to the task. A mechanical switch requires five actions:

- Location of the switch
- Touch the switch
- Press the switch
- Hold the switch
- Release the switch.

An electronic switch (sensor) only requires two actions: a. location, b. release.

An electronic switch (sensor) allows a student to manage two switches more readily. Two switch scanning does not require any waiting. Waiting to then "hit" a switch requires a rhythm not usually available to students with complex bodies and inexperience in graded motor movements.

When using automatic single switch scanning, the activity of switch activation becomes paramount while the actual activity beomes 'removed" from immediate access. Since rhythm doesn't come without a lot of motor practice, the activity itself is made so simple it's boring and the timing is tedious. How could anyone possibly use an AAC device if they only had two or four choices? How is that leading to novel speech and initiation of communication with a partner?

Mechanical switches can be used for "one shots" such as an attention getter using a simple AAC digitized device with a single phrase so that the student could speak; "Please get out my PODD book so I can talk to you." or "Im ready now." or the "One shot is the recorded refrain of a song or story."

For switches to be real access with elec-

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tronic sensors, two-switch scanning can be supported and the child can have access to many more items, and not be waiting, but rather participating right from the start, with moving. With two-switch scanning the adult can either move through the scan, while working with the student, while the student has control of 'select' or the student can move through the scan, and the adult can have control of select. This is a shared activity which can be repeated and prolonged when teaching it, not testing it.

We can also give the use of an electronic switch to a switch adapted mouse, so the student could have control of left click while the teacher is at a smartboard. Smartboards have usb ports giving the student the opportunity to participate.

9. **Set up activity for student to join, supporting postural control to the activity itself and its anticipation.**
10. **Activities need to build, be interesting and complex.**
11. **Mistakes will be made, expected and encouraged.**

When working with students who need adult assistance in most of their daily skills, it's frequently hard to recognize the adult gets the student ready for an activity within the classroom before the activity is ready. In classrooms where children are mobile, the child must move to the activity. This move prepares them for how to participate. In our classrooms we need to have the computer ready to go with the activity we want to use and then bring the student up to the computer, take them out of their chair, or move their position and immediately befing the activity. This pairs "readiness" for "engagement."

Activities need to be interesting and complex. Then the activity build on the last lesson, with experiences growing. Even the simple activity of taking photos, should be theme related, and then photos can be taken by the student, but placed in a folder. Then, photos can be sought on the internet to add to the folder, and the folder can become the resource for a journaling activity. Journalling should include printing, which the student should be able to do from the computer. The complexity is that there is a process, theme and guided access to developing organization, configurations and resources for developing stories.

Mistakes should be made. No human being can not make motor mistakes. We all need lots of experience. Making mistakes is not a mistake, it's figuring our what kind of mistake was made. Is working with students the mistake a motor mistake, cognitivie mistake, inadvertent mistake or a common mistake? Mistakes must be made, realized and why and a method of correction ensures this is a process we all learn with, not how to not make msitakes, but how to recognize them, and then how to fix things, and go on.

12. **Alternative access must be used by others to support the "mental rehearsal" and "visualization."**
13. **Work for short periods, frequent**

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breaks, support knowledge of beginning, middle and end of activity.

Many of us who teach used to be taught that children learn through role models. We now know that's not exactly accurate. Children learn from doing. However, their true doing of an activity usually includes a visualization of a person doing an activity competently. For example, a child wants to learn to ride a bicycle. They have seen many bicyles being ridden. They see themselves riding a bike, they do not see themselves learning to ride. This is called a visualization of competence which includes a "mental rehearsal." The mental rehearsal is what you see yourself accomplishing.

Children with complex bodies view visual pictures around within their personal environments of individuals using competently an AAC device, or driving a powered chair, and especially not using a device with alternative access. We need to provide them with many videos/photos and examples of competent use of the equipment we are asking them to manage, and with examples of that management with alternative access..

We work too long at one time and control the activity itself, so it's challenging for a student to demonstrate initiation. Work for short periods, taking frequently breaks that allow you to discuss what happened. This doesn't mean lying down inbetween reading two sentences, it means breaking up a lesson into small parts for an individual student in a whole time period. Instead, we tend to have a group of students and their "turn" is fast and short, but the group session is long, trying to give everyone a turn. Intsead make groups small and have more time with each student at one time, and then a turn with another.

14. **Increase numbers of activity, to support a larger repertoire of experience and control.**
15. **Expect real "access" to be "revealed" and "taught" rather than "tested."**
16. **The activity must be known, and contain success and challenge, risk and reward.**

With children who are learing, access develops and switch sites develop. For any access to be initiated and used, the activity must be available and practiced. Children with copmlex bodies need more opportunities to practice and experience activity. Instead we tend to continue to do the same "switch" activity and when we don't see efficient access developing we give up, or keep looking for games or entertainment to teach switch use. That's not how it works. Activities of interest, education, literacy, communication are rich and intense. These can provide us with the curriculum needed, and with the experience our students require. When access is placed back in its rightful place, not first, but last, we can see real progress in access. A child has to want to draw, and then want to use a crayon, long before they can "color within the lines" or draw a recognizable picture with obvious parts to create a visual story. We need to support our students to want to work, explore and experience, with access as a part of activity not as the activity.

REFERENCES:

This is my own original thinking and work, except for the influence of Jean Piaget, Jean Ayres, Eric Ericcson, Berta Bobath, Carl Jung, and many others I can't even list who have influenced my own learning over the . However I did make reference to two articles when talking about "mental rehearsals" when practicing activity and these ideas come from these two referenes from the journals of OT Practice.

"Translating Motor Control and Motor Learning Theory into Occupational Therapy Practice for Children and Young Adults," Part One, Nov. 17, 2008, Part Two, Jan .19, 2009, American Occupational Therapy Associations (AOTA Publications) OT Practice. ■

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Just Relax? Understanding the Self-Regulation Needs and Strategies for Success for Students with Autism Spectrum Disorder

Students with ASD can present with heightened states of anxiety, often resulting in challenging behaviors, in relation to the neurological features and characteristics of ASD, and difficulties inherently knowing how to self-regulate: to self-calm, relax and refocus. Numerous modes of technology can be used as appropriate self-regulation tools for instruction and easily accessible self-calming strategies so that individuals with ASD can be at optimal states for learning and functioning throughout their day.

Students with autism spectrum disorder (ASD) can present with heightened states of anxiety in relation to the neurological features and characteristics of ASD, often resulting in erroneous fight, flight or fright responses. An increase in stress and anxiety can often present as challenging behaviors in students with ASD due to difficulties inherently knowing how to self regulate. According to Galinsky, 2010, regulating one's thinking, emotions and behavior is critical for success in school, work and life. Self-regulation is the ability to self-calm, relax and refocus when experiencing increased stress and anxiety. Researchers at the University of Amsterdam reviewed 31 studies that focused on the presence of anxiety disorders in children under 18 years old with ASD. Results of this research review indicated that about 40% of children with ASD had at least one co-morbid diagnosed anxiety disorder (van Steensel et al., 2011). Studies have also shown that the nervous systems of people with ASD are in a continual state of "high alert" due to higher resting heart rates, resulting in even higher heart rate responses and greater levels of stress neurochemicals in response to other stimuli, as compared to people who do not have ASD (Goodwin, et al., 2006). Further substantiating the self-regulation needs for students with ASD.

In her book Emergence: Labeled Autistic, Temple Grandin states, "My reputation in elementary school was shaded with impulsive, erratic behavior, temper tantrums and the worst report card possible, but I was also known for unique and creative abilities" Unfortunately, this description is characteristic for many students along the autism spectrum, where their strengths and abilities are often eclipsed by challenging behaviors, generally resulting from their inability to control unexpected responses due to increased anxiety. By failing to recognize the fragile emotional and self-regulatory states of many students with ASD, educators, professionals and even family members can unintentionally exacerbate anxiety levels particularly if trying to teach skills under these circumstances. Focus on skill development in the area of self-regulation and relaxation often occurs when the student is escalated, which is not an optimal time for learning. It's imperative that people

SUSAN K. LEWIS STOKES, M.A., CCC-SLP, Educational Autism Consultant and Trainer. She has specialized in the area of autism spectrum disorder as both a speech/language pathologist and autism consultant for over 30 years. She presents at many state and national workshops/conferences, and frequently provides trainings and student support, related to all aspects of ASD with a specific focus on the use of evidence-based practices as positive behavioral Intervention and supports, to various groups and school districts across the country, Canada, and Mexico..

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who support students with ASD develop an understanding of anxiety, what signs to look for, what triggers increase anxious states, and self-regulation strategies to help the person with ASD become better regulated and achieve a more calm state. This key information will be highly specific and individualized to each student with ASD.

It's critical to develop the understanding that students with ASD often exhibit challenging behaviors resulting from increased anxiety because they don't know how to make better responsive choices. Therefore behavioral change will be dependent upon direct instruction to students with ASD, when they are calm, so that they can learn self-regulation skills and have opportunities to practice skills in a safe and supportive environment. Many students with ASD do not know what the sensation of "'calm" feels like and need to learn what it *feels* like to be calm, versus being *told* to calm down. Students with ASD will need to be specifically taught to recognize what causes increased states of anxiety, such as environmental or context triggers; what does the anxiety look, feel and sound like (e.g., silly-acting behaviors, aggression, refusal to work, explosive-behaviors, etc.), as well as strategies or tools to self-regulate. Instructional strategies for self-regulation should reflect the unique learning style of students with ASD, highlighting their strengths in processing static information (given visually). As students with ASD often exhibit weaknesses in processing transient information, talking to them (as a calming method) can result in increased anxiety and challenging behaviors. Numerous modes of technology, from low tech anxiety scales, to high tech use of video-modeling, can be used as appropriate tools for instruction and strategies for self-regulation so that individuals with ASD can be at optimal states for learning and functioning throughout their day. Use of these tech tools will provide individuals with ASD self-regulation tools and strategies that they can easily access to calm themselves independently. Focused instruction and practice in self-regulation should be given to students with ASD at all developmental levels, and should occur multiple times across the school day, for short periods of time, when the student is calm.

For students with ASD, intervention in the area of self-regulation should also include direct instruction in the identification and intensity level of emotional states in self and others, as they often have difficulty recognizing facial expressions and the emotion behind them. With difficulty understanding and regulating their own emotions, compounded by communication difficulties in appropriate expressing their feelings, students with ASD can often be misperceived as not being able to respond emotionally or lacking emotions, lacking empathy, or exhibit exaggerated or inappropriate emotional responses. Despite these misperceptions, students with ASD have demonstrated the ability to learn to recognize and interpret emotional states in self and others when given appropriate instruction.

The development of a self-regulation plan is an important component, to clearly define the student's stress and anxiety warning signs, triggers and individualized plan for self-regulation. Everyone who works with the student should have access to this plan, as well as the student (if deemed appropriate). Please see below free web-based resources for student development of self-regulation plans from the Wisconsin Department of Public Instruction:

- EC – 2nd Grade Emotional Regulation Plan: https://children.wi.gov/Documents/mhk-2eregplan.pdf
- Grades 3 – 5 Emotional Regulation Plan: https://children.wi.gov/Documents/mh3-5eregplan.pdf
- Middle School / High School Emotional Regulation Plan: https://children.wi.gov/Documents/Emotional-RegulationActionPlan.pdf

NOTE: Occupational Therapists are very important team members for students with ASD and are typically well versed in the area of self-regulation, and should be consulted when determining self-regulation needs and strategies.

"LOW TECH" INTERVENTION STRATEGIES:

- Access to a "Quiet Spot", "Home Base", "Chill Zone", "Quiet Cave", "Regulation Station", etc. A clearly defined,

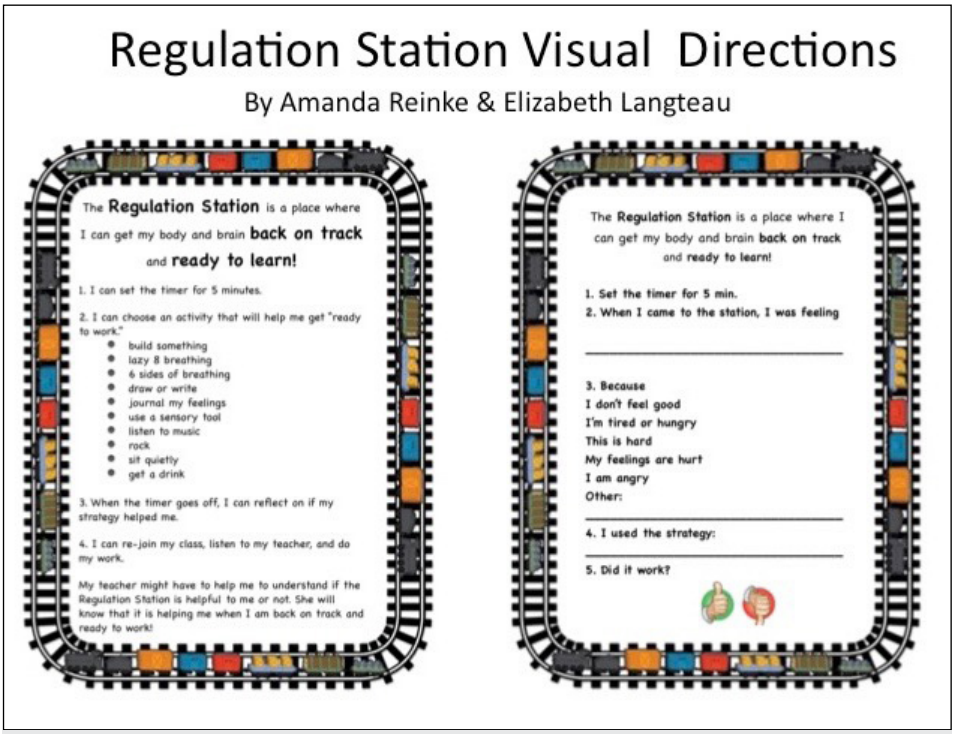

Figure 1: 2 RS Visual Directions

Figure 2: PVC Pipe Quiet Spot

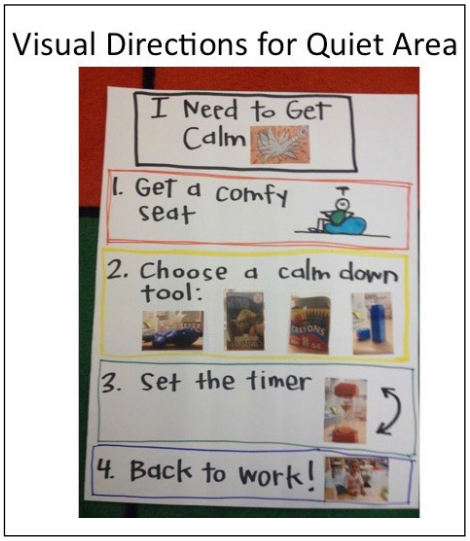

Figure 3: Quiet Spot Visual Directions

positively-viewed, individualized location that the student with ASD is taught how to access and use when calm, so that they can more readily access when anxious for calming. A place to escape the stress of a particular environment to prevent meltdowns, or a place to regain control if a meltdown occurs. Multiple locations in multiple environments might also be an option for some students. Visual directions can be utilized to teach the student what to do when accessing their quiet spot.

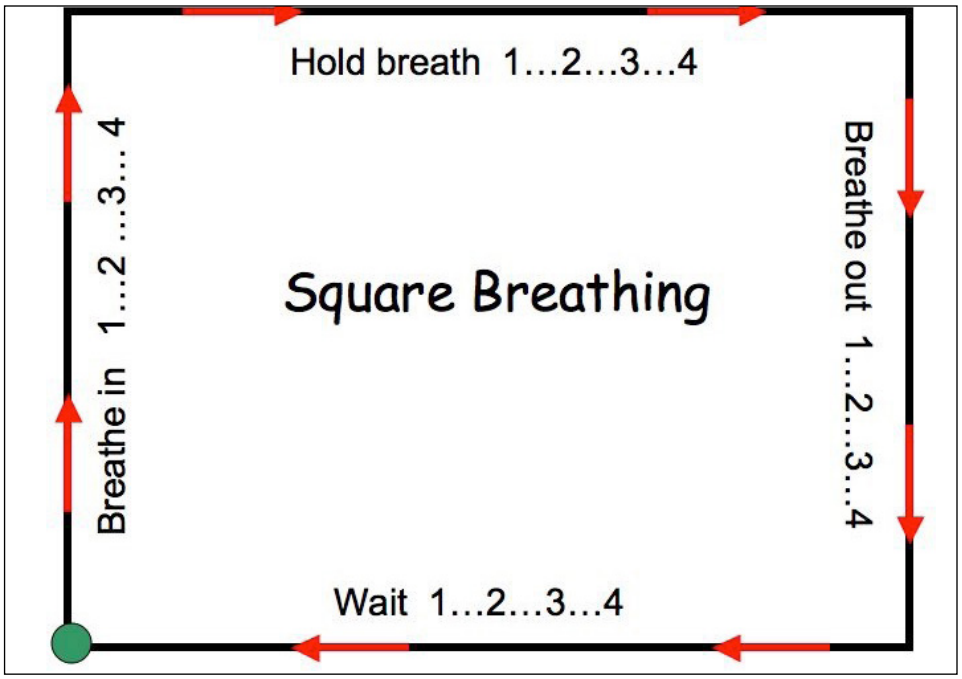

Figure 4: 4 Square Breathing

EXAMPLES: Fig.1- 1 RS Visual Directions; Fig. 2 PVC Pipe Quiet Spot; Fig. 3 Quiet Spot Visual Directions

- Regulated Breathing: Regulated breathing initiates the relaxation response, which helps to neutralize the fight, flight or fright neurochemicals that are released in the brain.
- 5-Finger Candle Blow: The student is taught to "blow out the candles" in succession using their fingers (or an adult's) as a visual model.
- Square Breathing: A low tech visual strategy where the student visually and physically uses their finger to trace the outline of a square to regulate their breathing. This visual can be taped to their desk or planner for easy access. ***Figure 4: Square Breathing***
- Figure 8 Breathing: A low tech visual strategy where the student visually and physically uses their finger to trace the outline of a sideways figure 8 breathing in while tracing half of the figure 8, and then breathing out while tracing the other half.
- "The Incredible 5-Point Scale", by Kari Dunn Buron: A low tech visual strategy that represents what escalated states of anxiety can look like, feel like, and sound like, as well as what to do when at the various levels represented on the scale. For younger children, a 3-Point Scale can be utilized. ***EXAMPLES: Fig. 5 My Upset Scale; Fig. 6 Princess 5-Point Scale***
- See the Autism Internet Modules website for an instructional module on "The Incredible 5-Point Scale" (www.autisminternetmodules.org).
- Communication Problem Solving Page: A low tech visual strategy that is individualized for each student representing various communicative needs on a single page such as "All done"; "I need help"' "It's too loud"; "I need headphones"; "I need putty"; "I need a drink"; "I need to take a walk"; etc. When a student's anxiety is heightened, their ability to be an effective communicator is significantly decreased. This single page visual strategy can be shown to the student to hopefully increase their ability to appropriately communicate their needs and thus lessen their anxiety. ***EXAMPLE: Fig. 7 Communication Problem Solving Page***

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Figure 5: My Upset Scale

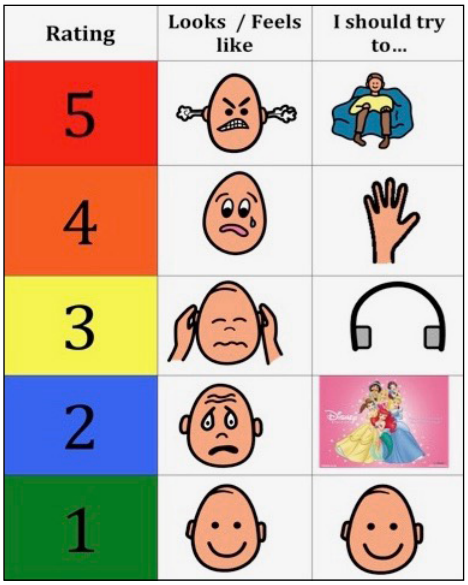

Figure 6: Princess 5-Point Scale

- Progressive Relaxation: A relaxation strategy that teaches students to relax different parts of their bodies progressively, and think positive thoughts when confronted with stressful or anxious situations. Visual supports can be used for instruction

EXAMPLES: Fig. 8 Pipe Cleaner & Popsicle; Fig. 9 Spaghetti noodles

Figure 7: Communication Problem Solving Page

- See instructional resource: Relaxation: A Comprehensive Manual for Adult and Children with Special Needs by Joseph R. Cautela & June Groden
- Visual Choice Cards for self-regulation strategies and breaks: EXAMPLES Fig. 10 Retractable keychain; Fig. 11 When You Get Mad; Fig. 12 Calm Down Sandwich

"HIGH TECH" STRATEGIES:

- Video Modeling / Video Self-Modeling: An evidence-based practice that can be used to teach skills such as regulated breathing; the Incredible 5-Point Scale; Yoga; etc. through repetitious viewing of self or others engaged in self-regulation strategies. See a free instructional module on implementing video modeling on the Autism Internet Modules website: www.autisminternetmodules.org
- Yoga Research supports the use of yoga as a proactive self-regulatory strategy for students with ASD.
- Numerous free videos on YouTube: http://www.youtube.com/watch?v=j7_FtGd3_Z4&feature=related
- www.specialyoga.com
- www.zensationalkids.com
- www.kidsyogastories.com
- "Yoga for Children with Special Needs" by Aras Baskauskas (DVD) - see Amazon.com
- WatchMinder®: A watch that allows for a discrete cue (watch vibration) to be given to communicate pre-programmed or personalized messages at fixed times or intervals. Self-regulation reminders for regulated breathing, check 5-Point Anxiety Scale, physical activity breaks, etc. could be given. (www.watchminder.com) ***EXAMPLE Fig. 13 WatchMinder***
- MeMoves™: A research supported multi-sensory program, using rhythmic and visual patterns, music, movement and images to increase attention and calm individuals of all ages and abilities, in as little as a few minutes per day. The program simultaneously engages a person's auditory, visual, motor planning and sequencing and limbic parts of the brain by having individuals imitate the actions from a video of a person engaged in various simple geometric shape arm movements. This can be implemented individually, small group or whole class and is available in a downloadable digital format that can be accessed on any device. (www.thinkingmoves.com)
- GoNoodle: A free, or paid "Plus", web-based resource that provides various brain break activities to keep students better engaged, focused and motivated throughout the day. (www.gonoodle.com)
- Numerous free videos on YouTube: http://www.youtube.com/watch?v=j7_FtGd3_Z4&feature=related
- "Yoga for Children with Special Needs" by Aras Baskauskas (DVD) - see Amazon.com
- Apps for the Apple iOS devices (iPad; iPod; Apple Watch; iPhone): There are thousands of apps for relaxation and meditation, with calming sounds and music and visual scenes, which are also very effective for calming students

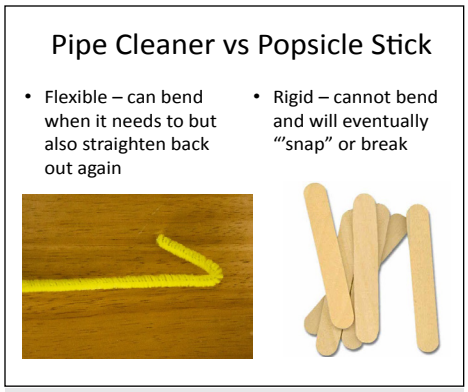

Figure 8: Pipe Cleaner & Popsicle

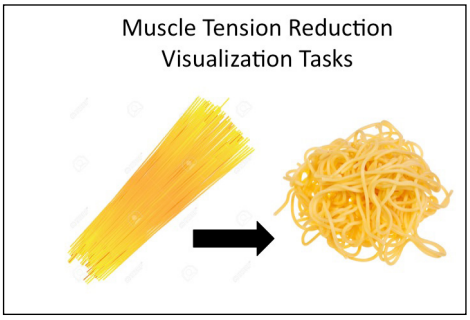

Figure 9: 9 Spaghetti noodles

Figure 10: Retractable keychain

with ASD, and should be utilized if appropriate. However, the apps noted below are more specific to self-regulation and management of anxiety:

- SOSH™ by Dr. Mark Bowers: Based on the SOSH framework, which focuses on the 5R's of social skills development that incorporate relaxation and self-regulation (NOTE: "Lite" version allows for a free 7 day trial).
  - Relate – connect with others
  - Regulate – manage behaviors
  - Reason – think it through
  - Relax – reduce stress
  - Recognize – understand feeling
- The Shredder™ by Dr. Mark Bowers (also part of the SOSH app): A method to visually "shred" negative, perseverative or interfering thoughts.
- Autism 5-Point Scale EP, by the Minnesota Department of Administration: Based on the "Incredible 5-Point Scale" instructional strategy for self-regulation developed by Kari Dunn Buron.
- Take a Chill – Stressed Teens, by Channel Capital, LLC: An app with tools to help teens manage stress and bring mindful practices into a daily routine.
- Zones of Regulation®, by Elosoft: Based on the "Zones of Regulation" Curriculum noted below.
- Chillax, by Wimbledon Sound. Uses a combination of soothing music, relaxing sounds and binaural beats to ease a person into a state of relaxation and calm.
- MindShift®, by Anxiety Disorders of BC: Designed for teens and young adults to cope with anxiety by identifying active steps using mindful tools and strategies.
- SmilingMind, by Smiling Mind: A program designed for ages 7 through adult to assist with managing anxiety through meditation.
- Wellbeyond™ Meditation for Kids, by Wellbeyond Inc.: For ages 4+ (made for ages 9 – 11) to help children cultivate mindfulness via mediation.
- BrainWorks, by Sensational Brain: Provides children with sensory breaks.
- GoNoodle Kids, by GoNoodle, Inc.: Ages 4+ (made for ages 6 – 8). Based on the GoNoodle web-based resource
- Yoga for Kids – Fun Workout for Kids, by Zany Studio: 30 different poses using both animated and real children examples.
- The Adventures of Super Stretch™, by The Adventures of Super Stretch, LLC: A children's Yoga app using storytelling, animation and video examples through both animated and real-life children examples.
- Tactical Breather, by The National Center for Telehealth and Technology: Instruction to gain control over physiological and psychological responses to stress through repetitive practice and training
- Breathe2Relax, by the National Center

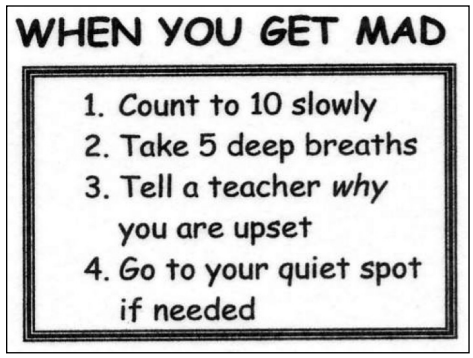

Figure 11: When You Get Mad

Figure 12: Calm Down Sandwich

Figure 13: WatchMinder

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for Telehealth and Technology: Instructs users to learn the stress management skill of diaphragmatic breathing.

- Breath, Think, Do with Sesame Street, by Sesame Street: An app for young children to teach skills such as problem solving, self-control, planning and task persistence, with exposure to emotional vocabulary, a calm breathing technique and personalized encouragements.
- Google Drive: ANY previously created "low tech" visual support can be placed in Google Drive and then accessed on an iOS device via the Google Drive app – easily taking "low tech" to "high tech"!
-
- Apple iOS apps for identifying emotions in others:
- Touch and Learn – Emotions, by Innovative Mobile Apps: Uses principles of ABA to teach emotions via 100+ real photos - also customizable.
- ABA Flash Cards and Games Emotions, by Innovative Mobile Apps: 20 target emotions are taught via 200+ real photos with 6 instructional modes for learning and 8 game-play modes.
- Emotions from I Can Do Apps, by I Can Do Apps, LLC: 5 target emotions via 5 progressive levels of instruction using real photos.
- Emotions 2 from I Can Do Apps, by I Can Do Apps, LLC: More advanced emotions targeted with 5 progressive levels of instruction using real photos.
- BabyEmotions, by I Can Do Apps, LLC: 6 target emotions via 50+ real photos – for early development of skills.
- Emotion Flashcards, by I Can Do Apps, LLC: 13 target emotions via 240+ real photos.
- Emotionx, by Dunedin Multimedia Limited: Over 70 emotion expressions presented in high-resolution detail (not real photo images). Allows for zoom-in to explore facial details used to express various emotions.
- Autism Emotion™, by Model Me Kids: 4 target emotions explored in a social narrative using real photos.
- Feel Electric!, by Sesame Street: For adolescents and young adults. Using content from The Electric Company, 50 emotion vocabulary words, using real photos and definitions are explored featuring 3 games, a digital diary and a "Zany" story-maker. Highly customizable too with a point system and scoreboard for motivation.
- S.E.E., by Saym Basheer: 4 levels of difficulty targeting 7 emotional responses demonstrating variations in emotional intensity.
- What's the Expression, by ColorSkit: Based on ABA principles to develop facial recognition skills targeting 10 emotions via animated presentation versus real-life.

CURRICULUMS:

The Zones of Regulation: A Curriculum Designed to Foster Self-Regulation and Emotional Control, by Leah M. Kuypers, MA Ed. OTR/L, 2011.

How Does Your Engine Run? The Alert Program for Self-Regulation, by Williams, M.S., Shellenberger, S., 1996.

S.T.O.P. and Relax© A relaxation training curriculum integrating yoga, psychology, and special education techniques. http://stopandrelax.net/

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Kuypers, L., The Zones of Regulation: A Curriculum Designed to Foster Self-Regulation and Emotional Control, 2011.

Van Steensel, F.J.A., Bogels, S.M., & Perrin, S. (2011). Anxiety disorders in children and adolescent with autistic spectrum disorders: A meta-analysis. Clinical Child and Family Psychology Review, 14, 302-317 ■

Dolphin's Big 3: Cover Every Aspect of Your Accessible Instructional Material Initiatives

Even with the abundance of assistive technology options available at our fingertips, creating, distributing and implementing accessible instructional materials can still present a variety, of what seems like, insurmountable barriers. What do we do about all of the materials we have that are not available in accessible formats? How do we easily create all of the different formats we need such as braille, audio, large print and accessible digital materials? How do we get affordable reader technology to every student with a print disability? How can individuals then go beyond reading and move into writing and correspondence?

YOU CAN CONVERT ANYTHING

You're regularly faced with a variety of formats that need to be converted and delivered to individuals in your school or organization with print disabilities—those who are visually impaired or have a print-based reading disability. EasyConverter provides an economical way to meet all of your needs by providing you the ability to convert Word documents, PDFs, Plain Text and HTML, NIMAS, DAISY, EPUB and Paper Documents (using a scanner) to braille, audio, large print and digital formats.

With the wide variety of digital book repositories now available, and the legal requirements of publishers to create and provide natively digital versions of all of their published works, hopefully scanning your own books and documents are the exception and not the rule. When you have print materials that need to be scanned, EasyConverter includes top-quality OCR technology with editing capabilities so that you can mark-up text, graphics and tables for the highest quality digital output.

When using EasyConverter to create audio files and DAISY talking books, you have the ability to choose from a number of natural sounding text-to-speech voices. When converting to DAISY books, you can choose a variety of synchroni-

MARY JO BARRY, is a marketing consultant and a 20-year assistive technology professional. Currently Mary Jo heads up Dolphin Computer Access' marketing in the United States. Mary Jo has a Bachelor's in Education and has spent the majority of her career after teaching working as part of product development and marketing teams for companies producing products for people with varying disabilities. Ms. Barry is an author of curriculum, international speaker and trainer. Mary Jo works out of her home office near Phoenix, Arizona.

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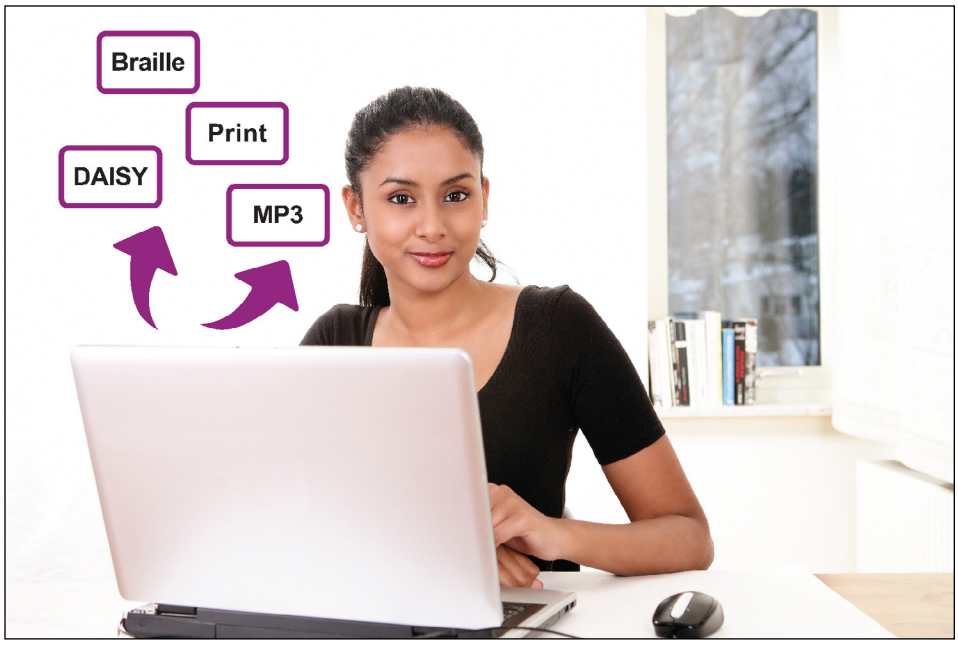


EasyConverter

EasyReader

zation options like word-by-word, sentence-by-sentence or paragraph-by-paragraph.

Large Print conversions incorporate robust options that allow you to do more than just increase the size of the text. You can assign different font values to headers and body text, specify font styles, colors, line and header spacing. You can remove blank lines and scale images to fit the page and change the orientation. The best part, once the text is enlarged, EasyConverter allows you to retain the original page numbers even though the text now flows across additional pages.

EasyConverter also supports contracted and uncontracted braille for a multitude of language codes (https://yourdolphin.com/product/features?pid=7#Braille). Braille conversions keep the formatting of the original document, it respectfully retains the format of headers, footers, numbered and bulleted lists, tables, image descriptions, page breaks and detects web addresses and emails. The Braille Editor allows you to see your braille conversion as it will be embossed and then enables you to edit anything you choose using a QWERTY keyboard or your 6-key braille input via your braille display. All your conversion needs are covered!

E-READER TECHNOLOGY

To celebrate 30 years of providing assistive technology solutions, Dolphin created a free version of their EasyReader software. The iOS App is available to download in the iTunes Store and the Android version is coming soon. The free EasyReader App is the number one way you can efficiently and effectively provide

reading accommodations to the individuals within your organization who are visually impaired or who have other print disabilities. The app has become wildly popular and was downloaded nearly 10,000 times in its first month.

This free app has one-click connections to your subscription book repositories and news outlets, including top sites like Bookshare, NFB-Newsline and CELA (Canada). Readers can browse, find, download and read human narrated books or deploy text-to-speech to read books that have not been pre-recorded. Text can be copied from anywhere on your device and be read aloud. Other options that can be customized include highlighting colors, voices, touch screen font sizing and font color. EasyReader is also fully compatible with Voiceover. In addition to providing the free app to all members of your school or organization, if you're converting your own print materials into digital format, you can provide the full Windows version of EasyConverter on select computers.

MAGNIFICATION AND SPEECH SUPPORT FOR WRITING

People within your school or organization also need a way to interact with text and write. Dolphin delivers the best magnification and speech software available! Beyond its superior magnification capabilities, SuperNova is the only magnification and speech program that runs from a thumb drive without any installation. This allows users to carry their AT in their pocket and use it anywhere, anytime on any computer.

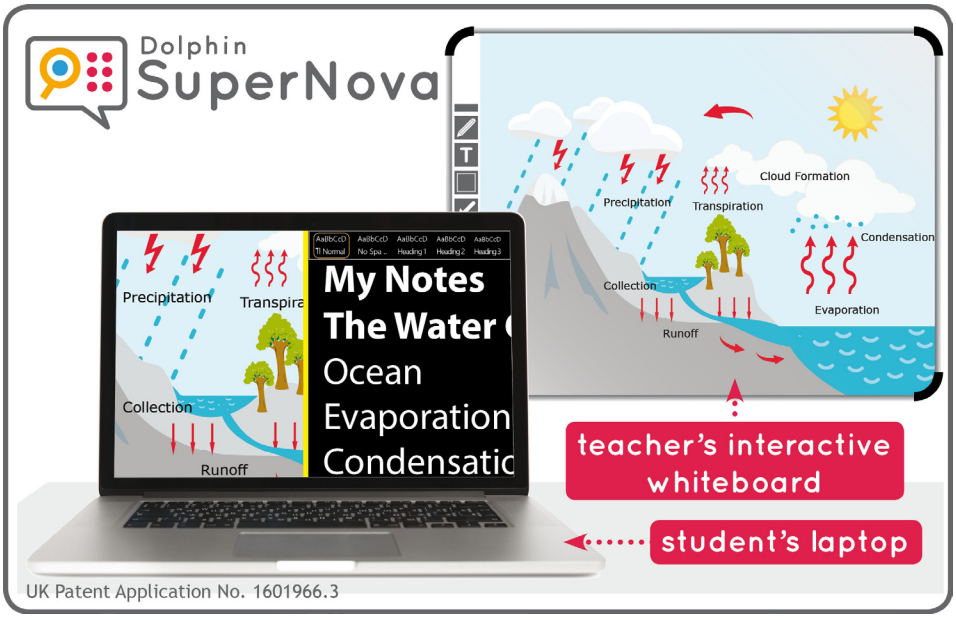
The magnification within SuperNova is not only clear and crisp at any size, but is also dynamic, allowing you to use touchscreens and tablets seamlessly to customize the size of the text throughout the day as eyes become tired and more fatigued.

Connect and View allows users to customize and interact with any projected information. This means projection systems and interactive whiteboards are viewed and manipulated on each user's computer respectively. One user sees information one way while another student, a completely different way.

WHO'S RESPONSIBLE FOR WHAT?

Meeting AIM initiatives are achievable when using the right conversion, reading and writing tools. Dolphin tools can make what seems like an impossible task, possible and easily repeatable. Even if you don't have a formal team, you can designate people and delegate responsibilities to make it happen.

1. Who is in charge of helping the people in your organization get access (obtain memberships) to book repositories and news outlets?
2. Who can be in charge of converting the inaccessible formats that exist within your organization to accessible formats?
3. Who can teach "creators" of materials to save them in the most accessible formats so that resources spent on converting can be reduced?
4. Who will be in charge of assessing the accommodation needs of the people within your organization?
5. Who will train users to use the technology? ■



SuperNova

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Rising Above Disabilities with Technology and Hope

Every family who lives with autism finds it difficult to maneuver in the world, but my family has an additional barrier. I'm Soo Yi, a single mother of three children, and my nine-year-old son Joshua has autism and is nonverbal. In addition to him having a disability, I also live with a disability, I am visually impaired. I acknowledge that our story is unique, but we face many of the same challenges other families with a child with autism and is nonverbal has to overcome. Together, Joshua and I have looked for opportunities to improve the way we communicate with each other at home and the ways he can communicate at school to bolster his independence.

SOO YI , Mother of three children: Joshua (9), Elizabeth (7) and Selene (4). Soo was born in South Korea, and when she was a child her family immigrated to Cincinnati, OH. Her parents moved to the Unites States to have better access to resources for people who are visually impaired. Due to a rare genetic condition, Soo slowly lost her vision as a girl. She graduated high school, went to college, married, and moved to California. After learning her oldest child, Joshua was on the autism spectrum, she started her journey into learning about autism. Her son, Joshua is a sweet natured boy who has autism and is non-verbal. As a single mother, Soo returned to Cincinnati to raise her three children. She always makes sure each of her children know how much they are loved and daily advocates for Joshua's needs. Soo was introduced to Tippy Talk by her private SLP because of their unique communication needs. TippyTalk sends a text to her phone which is read aloud by her phone's read aloud accessibility feature. This communication app helps both Soo and Joshua to better communicate with each other!

TANYA WESCOTT, M.A., CCC-SLP/L, Owner and lead Speech Language Pathologist (SLP) of Speech Connection in Cincinnati, OH (www.SpeechConnectionLLC.com). With 13 years of experience working in a variety of schools and private practices with children ages 2-21. Licenses include: American Speech Language Hearing Association (ASHA), Ohio State Board of Speech-Language-Pathology & Audiology, Ohio Department of Education (ODE) School license, and a grant recipient achieving additional licensure in working with persons with autism and severe and profound disabilities. Additional trainings include: Assistive Technology & AAC, Autism, ABA Trained, Beckman Oral Motor, General Education & Special Education Teaching experiences, Floortime Experience, PECS, PROMPT Trained, and TEACCH.

ROB LAFFAN, CEO, and creator of TippyTalk, a family run Tech-company specializing in communication solutions for people living with a verbal disability. TippyTalk's mission is to instantly connect nonverbal people with world around them, via technology. Rob Laffan is a loving father of a beautiful little girl named Sadie, who just happens to be non-verbal. It was this love for his daughter, and a promise which all fathers make to their children, to love, protect, and provide for them, that inspired the creation of TippyTalk. Since launching in late July 2016 TippyTalk has been downloaded 10s of thousands of times in over 70 countries worldwide, and counting.

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WHAT IS AUTISM, SPECIFICALLY NONVERBAL AUTISM?

Autism spectrum disorder (ASD) is a developmental disability that can cause significant social, communication and behavioral challenges. According to the National Institute of Health (NIH), the term "spectrum" refers to the wide range of symptoms, skills and levels of impairment that people with ASD can have. The symptoms and characteristics of ASD can present themselves in a variety of combinations, ranging from mild to severe. The Center for Disease Control and Prevention estimates that about one in every 68 children in the U.S. has been identified as having ASD, and it's estimated by the Autism Speaks organization that as many as 25 percent of these individuals living on the autism spectrum are nonverbal.

Impaired communication and social interaction are the two most fundamental symptoms of autism, and Joshua has both of them. A common misconception is that all nonverbal people are silent. This is untrue. Joshua communicates with me through different sounds, but he has difficulty communicating through spoken word.

This is where our journey began; we embarked and were determined, to find a way for Joshua to communicate with us. As the wise Bob Williams, expert communicator via augmentative and alternative communication (AAC), once said:

"The silence of speechlessness is never golden. We all need to communicate and connect with each other – not just in one way, but in many ways possible. It is a basic human need, a basic human right. And more than this, it is a basic human power…"

THE CHALLENGE

Joshua is a smart, gentle kid who has a hard time communicating with those around him. Before, Joshua would take me by the hand and lead me to what he wanted or where he wanted to go. Although this works, it was still difficult to communicate if we weren't in the same room or he was at school. I've also come to understand his vocal sounds, but this solution doesn't work in every situation.

When we moved to Ohio from California, I knew it would be more difficult to give Joshua the resources he needed to succeed. Through numerous hours of research I eventually found Tanya Wescott, our current speech language pathologist (SLP). Having her work with our family has been one of the best decisions we've ever made. For Tanya, this isn't just a job, it's her whole life and she's treated my family as her own. She works one-on-one at a personalized pace to help Joshua and our family. She's willing to put in the extra time and effort to grow Joshua's ability to speak starting in the comfort of our own home.

When we started working with her last September, we began by using the picture exchange communication system (PECS cards) and sign language. Tanya would laminate and braille the cards for our family, but this wasn't an ideal solution, as they would get lost at school and at home. The PECS was also limiting because new vocabulary couldn't be easily updated or added.

THE SOLUTION

While Tanya was at Ocalicon 2016, a conference for parents and professionals that is dedicated to helping those who have ASD, sensory disabilities and low-incidence disabilities, she told a room of professionals our family story and asked for advice on the different tools and technologies they'd recommend for our unique family. Tanya found that the room was sympathetic to our story, but the seasoned professionals didn't have a single resource our family could use.

A short time before, Tanya had seen a viral video of Rob Laffan and his daughter, Sadie who has autism and is nonverbal. The video showed TippyTalk, an enhanced AAC platform that allows the person with autism to communicate with family and friends by translating customized pictures into personalized text messages. Laffan, app creator and CEO, was at Ocalicon and explained that this app removes the person living with the verbal disability from the frustration and isolation of not being able to communicate, and aims to answer these three questions: How can we help people with nonverbal autism explain who they are as a person? How can we provide a way for individuals with nonverbal autism to express their individual likes and dislikes, their own needs, wants and desires? How can we provide a way to remove some of the limitations placed upon people with autism and help change society's perception of who they are?

Researchers in the AAC field AAC said that the ultimate goal for AAC technologies is to support the development of communication, so that individuals like Joshua and Sadie have the power to interact with others, have influence over their environment and are able to feel a part of the activities and events that happen within the larger community. For Rob and myself, this means that our children are a part of their environment and society and are able to communicate their thoughts and desires everywhere. The ability to communicate is critical to everyone's self-identity, and allowing our children to define who they are as individuals is an important step in their overall development. As parents, supporting this mission is innate as we have an overwhelming desire to protect and provide a better quality of life for our children. TippyTalk was an easy way to administer this support. Thankfully, due to Tanya's years of experience and training, she saw the potential in this AAC solution and thought it might work for a family like ours.

SOCIAL INCLUSION

Social inclusion has been further highlighted in the U.S. with the introduction of Julia on Sesame Street. Julia is a shy, four-year-old with red hair and green eyes, and she also has autism and is verbally able to communicate thoughts and feelings. The introduction of Julia shows that there isn't a typical example of a child with autism as her character was designed to have certain attributes that would allow many children to identify with Julia. She acts

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as a resource and common talking point for students with autism and their classmates.

National Public Radio reported that an introductory study completed by Georgetown University finds that the material being covered by the show is helping families, like ours, who have a child with autism feel more comfortable in the classroom, therefore welcoming them into the larger community. In addition, the study also found that families who don't have a child with autism are more accepting of those who do after seeing the show. As a mother, that's a heartwarming statistic to hear.

HOW TIPPYTALK WORKS

Knowing Rob's story and sharing the same values of social inclusion, we were excited to dive in and give the app a try during our weekly sessions with Tanya. With the app, communication isn't restricted by distance or physical impairment, and Joshua is given the autonomy to make individual choices that create an avenue for him to communicate socially. The app is also easily customizable so the pictures of people, places or items are specific to Joshua's day-to-day life. For example, we can integrate things that Joshua really wants to eat and play with; giving me a better understanding of what he wants.

Joshua has learned to choose a series of pictures in the app and a text message is immediately sent to my phone. Once I receive it, I have the ability to use the voice over technology in my phone, which is another beneficial accessibility feature, to read the text message out loud. This not only lets me hear the text messages that Joshua sends, but gives me the ability to replay a text message if I happen to miss something. This is the best part of using the app – it actually has a voice that can be repeated again, and is the closest I've ever come to hearing Joshua talk.

I knew that I wanted to find something that would work for Joshua, and thankfully, Tanya researched some of the best technologies in the field. The first time we used the TippyTalk app, I realized the impact the technology would have in Joshua's daily communications with me. Tanya set up the app, and walked Joshua briefly through how he could use it. In a short amount of time, Joshua had already learned where his favorite things were located in the app, and had the ability to send me text messages. At the time, I never heard him communicate a complete sentence. I realized that with this technology, I would be able to understand what motivates Joshua and better comprehend his needs. At this moment, I knew there was continued hope for our family and Joshua's ability to communicate with the world around him.

THE APP IN USE

Watching Joshua learn and grow with the app has been a rewarding experience for everyone who interacts with him. Joshua began using the app to tell me his wants. This meant I was getting a text from Joshua that said, "I want to play with the puzzle" or "I'm thirsty for a coke." Joshua is now engaging more with his sisters and wanting to interact with them.

Joshua is also beginning to express his feelings, not just his wants. Tanya told me that one night Joshua had texted her saying he was cold. This is an important milestone as we look to move toward using the app for communicating every want, need and feeling. Simultaneously, Joshua is learning to be patient with me and interact and make requests with his sisters and myself on a daily basis.

IMPACT OF TECHNOLOGY

TippyTalk has helped Tanya and I set expectations for Joshua and help him achieve certain communication benchmarks. Rob has also been very receptive of our family's needs. He understands what it's like to have a child with nonverbal autism, and he genuinely cares about making the lives of all people with autism better. Together, we're working on reducing frustrations while also expanding Joshua communicating his needs beyond the confines of the living room.

I've been sending Joshua to school with our family iPad and they have been slowly integrating it into the work they do with him. I'm working with Tanya, the school speech pathologist, assistive technology specialist and teacher to use the app correctly. As time goes on, I know it will become a staple in his ability to communicate with his peers and adults throughout the day. Joshua is becoming a skilled user and will continue to grow.

Tanya has emphasized that consistent use between home and school has been important for Joshua's development. At home, I'm looking forward to him developing further relationships with his two sisters, but also having him communicate via text message with my parents who only speak Korean. By potentially forming a two-way, bilingual conversation I know that our family can become closer than we ever have been before.

LOOKING TO THE FUTURE

For anyone on the fence about implementing an AAC tool in their homes to communicate with their children, I highly recommend they research the options out there that work best for them and their child. The ability to communicate may seem impossible at times, but our family is proof that with Joshua's desire to communicate and the help of a speech language pathologist, it can become a reality. Just like everyone else, our children living with disabilities have inspirations, frustrations, thoughts, ideas and feelings that are worth listening to.

Lastly, it's important for me (and others) to remember that Joshua's ability to communicate with others and myself isn't the end goal; it's only one of many. By beginning to break down communication barriers, Joshua is able to connect with family and friends anywhere at any time. Technology has bridged a gap between our disabilities, making everyday tasks easier to accomplish together. We still face many barriers, but we are continually working through it and have the right people and tools in place to get there. As Joshua continues to learn how to interact with the world and his family, he'll be able to have more personal autonomy, engage in personal relationships and communi-

cate to his fullest potential, which will create a better quality of life for him and our family. I'm confident we'll get there – to wherever Joshua needs to be.

RESOURCES:

https://www.nidcd.nih.gov/health/autism-spectrum-disorder-communication-problems-children

http://www.dcc-cde.ca.gov/af/afbasic.htm

https://arxiv.org/pdf/1411.6568.pdf

https://www.autismspeaks.org/science/science-news/many-nonverbal-children-autism-overcome-severe-language-delays

http://www.npr.org/2017/03/20/520577117/julia-a-muppet-with-autism-joins-the-cast-of-sesame-street

http://www.augcominc.com/newsletters/index.cfm/newsletter_44.pdf ■

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Closing The Gap LIVE WEBINARS

Engaging and Interactive!

$55 Single-participant fee. CEUs included.

Talk the Talk and Walk the Walk: Modeling, Questioning and Encouraging Language Development with AAC

FREE Webinar Sponsored By Saltillo Corporation

TUESDAY, SEPTEMBER 12, 2017

2:00 PM - 3:30 PM CDT

This webinar will present research-based techniques and strategies to increase communication for individuals using a speech generating device (SGD) via communication partner education. Participants will learn about communication and communication characteristics common to both partners, how to increase communication by modifying their own behaviors, six techniques to incorporate into everyday communicative contexts, and two strategies to use within a shared book reading context.

The webinar will provide foundational information for various communication partners (e.g., parents, teachers, classmates) to encourage positive behavior change and impact language learning and use for individuals using AAC. The presented techniques and strategies are evidence-based and easily implementable across settings and communication partners for generalization.

MELISSA MALANI

Harnessing the power of your technology while offline!

MONDAY, SEPTEMBER 18, 2017

3:00 PM - 4:30 PM CDT

When the internet is running everyone is happy. But how do we support our students when they're in environments without internet? Learn what apps and extensions for the iPad and Chromebook can run offline, and how to set them up for offline use.

Many options for using Chromebooks and iPads don't need internet access and much can be downloaded and used offline. From apps and projects that can be done without access, to setting up the environment to go back and forth between internet access and none, discover how learning and creativity will continue and flourish, even when ... the internet is down!

DAN HERLIHY

AAC in Early Childhood: Myths & Realities

FREE Webinar Sponsored By FRS Custom Solutions

THURSDAY, SEPTEMBER 28, 2017

3:00 PM - 4:30 PM CDT

AAC itself is a complex field, and implementing speech-generating devices with very young children requires a high level of training and technical expertise. This webinar will provide a foundation upon which participants can continue to develop their skills and knowledge base with this special population.

Specifically, this webinar will focus primarily upon use of high-tech speech-generating devices with children 1-3 years of age.

Participants will learn to identify and respond to common myths related to AAC use in early childhood; sub-topics will include alternative access (focusing on eye-tracking technology), iOS language systems and establishing goals for using AAC for the first time.

ANDREA SCHARIO

The BEST Web-based Resources for Professionals Working with Students with ASD

TUESDAY, NOVEMBER 14, 2017

3:30 PM - 5:00 PM CST

This fast-paced webinar will give participants a wealth of web-based resources to assist professionals in better understanding and programming to meet the unique learning and behavioral needs of students with ASD. Various websites will be explored, starting with evidence-based practices identified by the National Professional Development Center on Autism Spectrum Disorder.

Numerous free web-based resources that highlight instructional tools, strategies, and behavioral interventions for students with ASD will be shared, as well as resources designed to increase understanding of the distinct neurological learning differences of students with ASD for professional development and peer awarenessd.

SUSAN STOKES

Adapting and Creating Classroom Content using Free Open Educational Resources (OER)

MONDAY, NOVEMBER 27, 2017

3:00 PM - 4:30 PM CST

OER and copyright free materials can help supplement and reduce costs, and provide educators with free resources for differentiating classroom learning activities. Learn how to adapt and/or integrate free OER curriculum content and resources into the classroom learning environment. Including, copyright free images, online interactive learning activities, eBooks, teaching videos, podcasts and more!

Use digital pens as the new "blackboard" to record your lesson while teaching. Broadcast to the board from anywhere in the room, pause recording at any time, then save and post your lessons as online videos to programs such as Symbaloo, Padlet. Numerous homework supports and resources will be shared.

Create an engaging and supportive learning environment following from device to device for all students.

DAN HERLIHY

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  By Brian Whitmer and Scot Wahlquist
- ✔ **Presuming Competence for Students with Severe and Multiple Disabilities**
  By Pati King DeBaun
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  By Therese Wilkomm

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Creating Low-Cost AT Solutions for Blind, Low Vision, Deaf, HOH and Deaf-Blindness BY THERESE WILKOMM
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Believe Beyond Ability

"We BELIEVE in independence through assistive technology. We are excited to feature four amazing people that live in complicated bodies. We are brave enough to share our trials, epic failures and unpredictable successes along the way. We hope you notice the collaboration with other professionals and parents that made each of these stories special. Believe Beyond Ability uses technology to assist feeding, communication and powered mobility with a whole-person approach to implementing assistive technology."

Believe Beyond Ability is a non-profit organization that provides assistive technology evaluations, trainings and equipment to those with disabilities to increase independence. In the state of Arizona, communication devices and wheelchairs are often covered by insurance but many assistive technology necessities are not funded. We've found that many families are unaware of the creative solutions available to those with complicated bodies. Although we had no background knowledge in running a non-profit and no skills in fundraising, this need was too big to ignore. Those with disabilities need assistive technology to access life. Believe Beyond Ability is our AT Success Story.

Accessing life in a complicated body requires creativity and innovation. In Brene Brown's book, Daring Greatly, Brené asked Kevin Surace, Inc.com's Entrepreneur of the Year 2009 "What's the most significant barrier to creativity and innovation?" He responded, "....The problem is that innovative ideas often sound crazy and failure and learning are part of revolution. Evolution and incremental change is important and we need it, but we're desperate for real revolution and that requires a different type of courage and creativity...." Parents of children with disabilities are the most courageous and creative people we know and it was obvious that we needed parents on our board to provide comprehensive support. Brenda Del Monte (SLP) and Melanie Conatser (OT) co-founded Believe Beyond Ability and Robin Gellman and Kristi Roher are the two parents that complete our team.

When creative solutions are needed, "no" cannot be in our vocabulary. We often find ourselves saying, "I don't know YET." As therapists and independent contractors with Advanced Therapy Solutions, we entered home after home and school after school with the hope that, with a little piece of technology or a modification, these children and adults could gain independence. We learned four main principles through Santana, Max, Nani and Aidan. These are their success stories.

Meet Santana: On December 16th, 2006, Santana Black survived a near drowning experience and at the age of 22 months began his courageous course to participating in life in a new way. In the years the followed, Santana pulled through multiple surgeries, survived life threatening illnesses and infections and appeared to have no volitional movement. In 2010, he began working with an occupational therapist who saw intentional movement in his right wrist. Melanie Conatser, OT, put a drumstick in his hand and began to sing, "If you're happy and you know it clap your hands." Melanie paused and waited as Santana tapped the drum. This discovery of intentional movement held exciting promise to a long sought-after switch access method for Santana that would allow him to participate in his world. Through trial and error in therapy and the provision of many opportunities to practice switch use in meaningful activities,

BRENDA DEL MONTE MELANIE CONATSER

KRISTI ROHER

Believe Beyond Ability is a non-profit organization that evaluates, determines, provides and trains those with multiple disabilities on assistive technology to increase independence and access activities of daily living.

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Meet Santana: our super hero!

Santana was ready to expand his horizons. Brenda Del Monte, SLP, incorporated his cause and effect skills to increase independent control of his environment including activating sights and sounds. Through the use of a Powerlink Control Unit and switches, Santana was able to turn on his own music. Using battery interrupters and switches, he was able to operate toys and even his own light show. He ultimately used these skills to make choices on his iPad with the GoTalkNOW App with auditory scanning using a single toggle switch and the Applicator bluetooth interface by Pretorian. His ability to control his environment required a wide variety of assistive technology equipment. Most of this equipment is not considered durable medical equipment (DME) and is therefore not covered by insurance.

Santana fulfilled his mission on earth and received his wings on April 20, 2014. Believe Beyond Ability was created in his honor, paving the way for hundreds of individuals with disabilities to access life in new ways through assistive technology. He is our daily reminder to: ***Principle #1: PRESUME COMPETENCY***

We BELIEVE…
In the human right to
ACCESS LIFE–
access education,
access literacy,
access independent mobility,
access entertainment

Max was born prematurely at 25 weeks gestation. His official diagnosis is Cerebral Palsy and as a result of his prematurity, he is completely blind due to retinopathy of prematurity. Max is now 14 and is non-verbal. To his mom's delight, he walks independently. When we met him he had a four choice tactile board with voice output. Period. Max has a sophisticated interest in music and a large repertoire of movement activities that he enjoys. He has a reliable "yes" and "no" and could answer questions on chapter books demonstrating strong cognition of language. One of his mom's biggest frustrations was that Max was on milk and baby food and did not chew or self-feed. His body language suggested to us that feeding was not a favorite activity. He does not have a G-Tube so successful feeding attempts were required three times a day. His feeding positioning was literally curled up in a ball and that made it very difficult to feed him. One day, we were over at Max's house and he was having a particularly difficult day. "Head up" was a common phrase, but no one was sure if that was meaningful to Max. They tried a variety of chairs, tomatoes chairs, stools, etc. and no chair did the trick. They had a collar to help him with optimal swallowing positioning but Max hated it. At this point we had a couple of options. We could have (possibly should have) minded our own business, reminded them that we are AAC specialist and stayed away from the whole thing. Don't get me wrong, it would have been heart felt and there would have been statements of compassion like "I see that this is difficult" and "You are amazing parents." Instead, we addressed the problem with creativity, innovation and humor. It all started with…."Wouldn't it be cool if he lifted his head, then his music would play and when he brought his head back down between his knees the music would go off?" Then comes the "We don't know YET...but let's try it." We attempted this by first simulating the activity with no "real" technology. Each time he lifted his head, we played music on our phone and quickly selected "pause" when his head

Meet Max

began to lower. We tried to put a switch behind his head but as soon as he felt it, he reached back, grabbed the switch and threw it. The reclining position of that chair didn't promote the use of Max core muscles to sit up straight so we changed the chair to more of a stool that required a more upright position. One day we causally mentioned to his dad that we wish we could set this up on a "break the beam" type switch. We explained about proximity switches and that all Max would have to do would be to break the bream. I explained that we previously trialed proximity switches but they required Max to get so close that again, he could sense it was there, he would grab the switch and throw it. As we went down an extremely complicated road of how to make iPhone music switch activated with a break the beam switch and a recipe, the dad said "You mean like a garage door?" As we looked at him in confusion he said "I used to put a beam across my bedroom door and my alarm clock would play when anyone broke the beam and entered in my room." We looked at him in amazement. "Yeah…like a garage door." He said, "Let me see what I can do." What? Who is this wizard? A few weeks later, Max had a laser

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(but a flashlight could do) on a tripod and a receiver made out of a Cheeze-It box, plugged into an iPad running music off Pandora. When Max brought his head up, it broke the beam and the music started playing. (See Image 1) No special $800 seating system, no verbal prompting of "head up," no switches that triggered tactile defensiveness - just motivation. He could independently operate music if he kept his head in the proper positioning for feeding. Later I found out that Max's dad is in fact a rocket scientist – for real! But here's the thing about Believe Beyond Ability, it never just stops there. Once we have a break through, me meet the exact person who also needs that piece of technology. One of our kids with extremely low vision was also eating by mouth very poorly due to poor positioning. When we borrowed the laser beam and tried it with this boy, he also achieved proper positioning for safe swallowing. Neither child needed the laser beam music long term. Just long enough to understand how we need to sit when we eat to achieve safe swallowing.

Max currently has a low tech board of meaningful object, uses talk points (single message buttons) for location specific language like a button by the front door that says "I want to go outside." He has an iPad with GoTalkNOW with auditory preview and a 16-button keyguard where he uses direct select to access language. He uses this system at home and school because everyone involved in his care has been trained on the device. He can even command his Alexa to play specific music.

The key in this simple, yet life changing solution is that we enter the home with the intent to collaborate and team with caregivers and families. If we had set up an "expert/non expert "relationship with Max's parents, we never would have learned that with a little creative brainstorming, they possessed the tools and skills necessary to provide a way for their son to increase in independence. In the world of assistive technology, no idea is a bad idea. Often, it's all about modifications and who better to brainstorm ideas with than the parents. Don't have a Rocket Scientist on your team? No problem. We have discovered time and time again that parents are creative and innovative and they also happen to be experts on their own children. ***Principle #2: INVOLVE PARENTS***

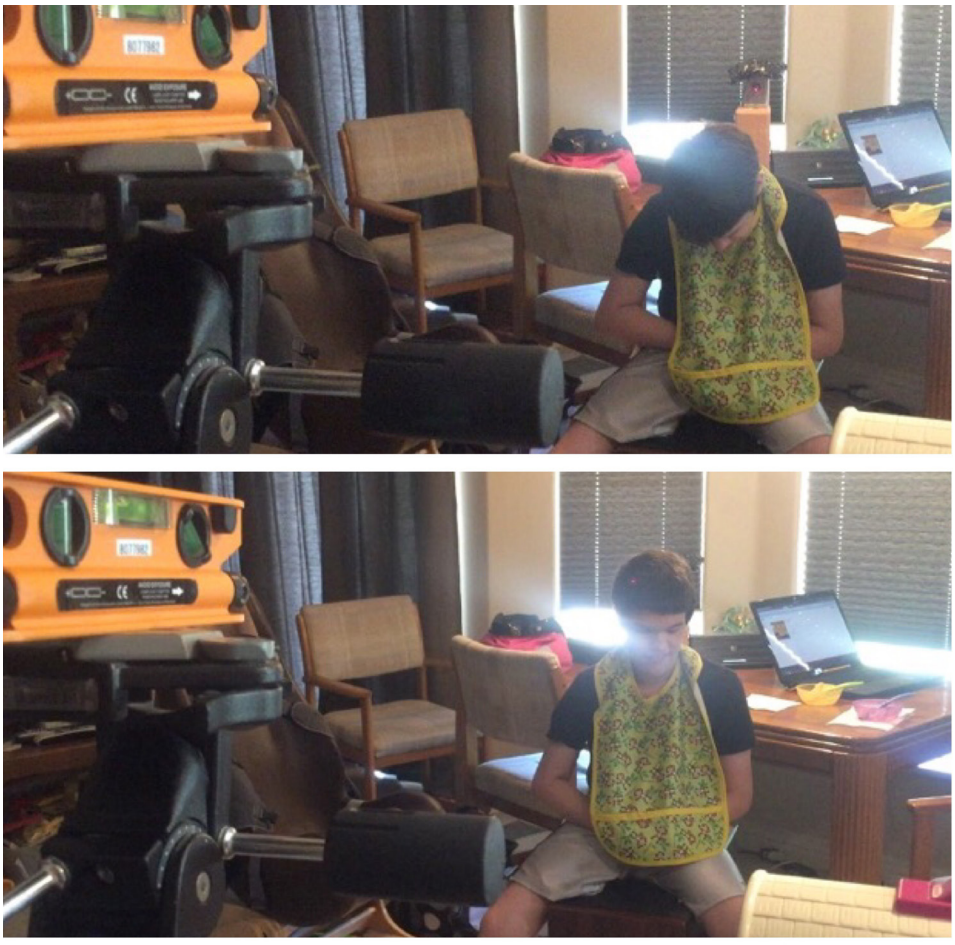

Image 1: Top shows the laser and the receiver (on a cheez-it box). Bottom shows that when his head is up he breaks the beam – note small red dot on his forehead

We BELIEVE
that regardless of the timing and cause of a disability,
....at birth, through disease, through degenerative disorder, or through accident ....
that all human beings have purpose and ability.

Meet Nani(Estephanie): Nani and her twin were born healthy and enjoyed six months of neurotypical development until the day of her tragic accident. Nani fell off her bed, experienced a traumatic brain injury and was hospitalized for nearly a year. The result of this injury left her with spasticity within her extremities which has led to contractures and no possibility of weight bearing through her legs. She can move her arms to reach for items, however she keeps her hands in a fisted position, which limits her ability to perform any functional task. We met Nani at age three and began introducing assistive technology that would increase her independence. Using switch adapted toys, we learned that Nani was able to touch and hold a switch with her right hand. We took this switch use ability and ran with it, moving her beyond toys and music on to movement. We researched GoBaby and decided to collaborate with Seton High School's robotics team to create mobility with power wheels operated with a switch. Once the car was adapted, we

Meet Nani (Estephanie)

added a kickboard, PVC pipe and a couple pool noodles for her specialized seating system. Sometimes "redneck" is the only option in the budget. She was fearful to touch the switch so a heart sticker was placed on the switch and away she went.

For the first time in her life, she experienced independent mobility. Her twin was her passenger and she, quite literally, was in the driver's seat. She began to learn about her world in a whole new way. She bumped into things and realized how to lift off the switch before she crashed. She learned how to stop in order to stay safe. She participated in our first (now annual) Roller Derby with 8 other participants. Believe Beyond Ability, Advanced Therapy Solutions and Seton High School Robotics team up to put on this derby annually. Each year 8-10 children receive cars and previous participants return. 2017 was our biggest event yet and NBC news did an excellent job showing these amazing kids maneuver through an obstacle course. Once freshman, now seniors, worked with us for four years in a row to refine the technology and now the parents can even steer from an android phone. Nani now drives her power wheels out in her neighborhood and participates in tag with friends on her street. (See Image 2)

Meanwhile, Nani received a Tobii Eye gaze device and began combining symbols to make requests, comment, ask questions and participate in social exchanges. This fancy eye gaze device didn't allow her to control music or videos on her iPad. We trailed two switch access with lockline mounting to each side of her head. We connected those switches to the Pretorian Applicator Bluetooth Interface and set up play and pause in iTunes. Recipes were created for other entertaining and educational apps on the iPad. Talk points (single message buttons) were also used to teach head movement for "yes" and "no." Nani quickly learned subtle head movements to nod for "yes" and shake for "no" and now we can communicate on some level with no technology at all. If we were able to complete work for Nani as independent contractors through Advanced Therapy Solutions we did it. When there were gaps in the care, Believe Beyond Ability filled them in. Training was completed with family and school staff to provide continuity of care.

As excited as we are and continue to be about the power wheels cars, power wheelchairs were the next step as these kids began to grow out of the cars and the need for independent mobility within the school setting increased. So off we went to Adapted Switch Lab (ASL) in Spicewood, TX to learn all about powered mobility. Are any of us physical therapists? No. As you have probably experienced, in the world of AT, the lines between professions blur as we all collaborate to creatively meet the needs. When you are looking for innovative solutions, all ideas are considered and letters after your name, don't really matter. Arlene James did an excellent job at ASL honoring pioneers in this area by quoting Karen Kangas' work. Kangas states (2003) "Optimum positioning of the human body is paramount to successful function, including mobility and cognitive alertness." Arlene goes on to state "Mobility and Movement is the easiest way to find interest, intent and allow for self-initiated, self-driven and thus, an engaging activity for the person."

Image 2: Nani having the time of her life in her power wheels.

What does the research say? "Mobility to explore your environment by any means will increase motor learning. As soon as you are reaching, as soon as you are walking, your cognition explodes." (University of Delaware Study with Robotic Movement) "Lack of motor learning and experience causes a delay and secondary disabilities" (Tech for Tots Cal State Northridge, USC, and Los Angeles Children's Hospital). We came back from the ASL training not only with new hope and motivation, but the skill set to begin implementation. Power wheelchairs were donated to us and we started putting bright children and their complicated bodies in power wheelchairs. Local wheelchair vendors donated chairs and Advanced Therapy Solutions donated gym time to create practice opportunities.

Nani pulled from her power wheels exposure and her two switching scanning on iPad and began using her head to drive a chair using the ATOM head array. She had hours of opportunities to drive outside in large spaces, inside in small spaces and to practice crossing thresholds.

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Image 3: Nani all grown up and in her new power chair.

Image 4: Nani getting her switch and adapted Snoopy toy at Believe Beyond Ability's Adapted Toy Give-Away.

We used the information on motivation to guide our mobility training. "Children learn and use mobility in familiar environments, and with familiar adults, and are particularly interested in the mobility not as a skill unto itself, but rather as a means to approach a person or object, leave a situation, explore an environment, and/or touch and obtain an object." –Karen Kangas. We set up short trips with high interest items in the small gym and watched the magic happen.

In the State of Arizona, you have to take a "driving test" to qualify for a power chair. Most kids have never been in a chair and rarely pass a powered mobility test on the first try. Knowing our uphill battle, we asked Adaptive Switch Lab to come out to Arizona to do a one-day training and educate assistive technologists and mobility evaluators. That's right, we gathered all key players in the same room, hearing the same information, seeing the same successful videos and we got buy in. Over 60 key contributors to the process of acquiring wheelchairs attended this one day training. We returned to Texas with a team of therapists and wheelchair evaluators for in depth training.

Now we were ready to have our first client participate in a powered mobility evaluation. We were allowed to use a known motivator, Dory, to place targets around the area. Nani was a rock star. She drove straight to a Dory and stopped and earned the Dory picture attached to a tongue depressor. Yep, less than 10 cents here, people. Then she scanned the room, located the next Dory on a stick and turned, drove and stopped at the next Dory stick. She crossed thresholds, managed curbs and stopped on command. An interesting thing happened while learning to drive and move independently, Nani increased her repertoire of single phonemes and consonant-vowel-consonant-vowel (CVCV) from "mmmmm" to "mama," "papa" "Nana," (her name), "Tete" (sisters name), "op" for "stop" and "GO!"

We looked at Nani's abilities; we asked "what is the next small increment of possibility;" we jerry-rigged the technology; and one step at a time, one piece of technology at a time, we came up with assistive technology solutions to treat the whole child. Communication was motivation for movement and mobility and mobility created increased opportunities for communication. It's all connected folks. In fall of 2016, Nani became one of the youngest people in the State of Arizona to receive a powered wheel chair. She drives around her neighborhood and her school setting independently. She is now six years old and world is her oyster. (See Image 3)

This whole process started by Nani learning to activate a switch. Every November, Believe Beyond Ability gives away 50 adapted toys with a switch. For some this is their first experience towards independence. For others it means that they get to experience a new toy during the holiday season rather than a gift card or the ever so popular bubbles. We collaborate with Ben Ritchie and Anthon McLaws to learn how to adapt each years' most popular toys. We will not under estimate the power of a single switch. (See Image 4)

We cannot be experts in all things. Whether you are an SLP collaborating on wheelchairs or a parent learning how to adapt toys, we need the expertise of others to treat the whole child. ***Principle #3: COLLABORATE***

We BELIEVE…..
in the hope of how.
How to access the world, and thrive
despite physical limitations,
regardless of origin.
Through education, communication,
mobility and support,
despite diagnosis and prognosis

Meet Aidan - (Left) Image 5: Aidan trying a cheek switch.

Meet Aidan: Aiden was born as a typical spunky, happy red headed boy. When he was nine years old, he was in a car accident that left him in a very complicated body. Aiden had no volitional movement. However, his reflexes were intact and when something funny was said, he smiled. When something sad was said, he created an audible moan. When someone walked into a room, Aidan could track them with his eyes. However, if you told him to look at something, he would freeze and have difficulty motor planning ocular movement. The eye gaze specialist reported this as "Ocular Motor Apraxia" – yep – it is a thing. Aidan's mom had Aidan evaluated for speech at five different agencies and they all said there was nothing they could do. She called the local Arizona Technology Access Program and told the specialist, Clayton Duffey, her son's story. He recommended Believe Beyond Ability. Due to his medical fragility, Aidan was not in school, and since it was April, they had already exhausted their 30 visits a year on physical therapy. When we got involved, they had no insurance or resources for assistive technology. We did not say "no," we said "We don't know YET... but let's try."

Do to his ocular motor apraxia, it didn't seem like eye gaze was going to be an option. We tried two eye gaze devices that could not even find his eyes. So we dove into looking for a switch site. We set him up on the iPad with the GoTalkNOW app on auditory preview and began looking at his body to see what it would do when he heard the auditory preview mention something of high interest. He was now 11 so "Five little monkeys" were out and The Regular Show, jokes, Peyton List and Katy Perry made the top four list of motivators. No matter where we placed the switch we ran into two issues – timing and release. It was difficult for Aidan to activate a switch within a timely manner once he heard what he really wanted. Release was almost impossible. Once he activated the switch, it would stay activated for minutes until he would finally moan and we would help him release the muscle. He would smile when he heard the one he wanted and he tried a variety of cheek options but the inability to release the switch made that site impossible. (See Image 5) No matter where we put the switch we noticed that his would take a big breath prior to an attempt and initiating movement. So, we placed the switch on his rib cage and had some success. Problem – he has to breathe – even when he isn't making a choice. For several months, we looked at switch sights and with that came a variety of "toys," including switch adapted fart machines, life-size minions and extra cool remote control cars. Soldering wires and collaboration with local toy adaptors were all part of these switch access attempt.

Aidan's switch use was unreliable. We continue to work on switch access through head control using powered mobility. He can't let go of a switch so let's put him in powered mobility? – "yes". Again we pulled from Adaptive Switch Lab in Spicewood, TX, where we learned about the motivation that independent mobility plays on those with little control and he continues to work on switch access to this day. (See Image 6)

Through the Arizona Technology Access Program Lending Library, we were able to get pieces of technology on loan so we began to trial several unique systems. We decided to move on to another epic failure – Eagle Eyes. Eagle Eyes is an innovative technology developed at Boston College that enables communication and learning primarily with individuals who have significant physical limitations. Surface electrodes are placed on the user's head, above and below one eye, and on each side of the head to the left and right of the eyes. The five electrodes are connected to a small battery-powered electrophysiological amplifier, which is connected to a computer. A program in the computer translates the signals received from the electrodes into the position of the mouse pointer on the screen. When the user moves his or her eyes, the mouse pointer moves. (See Image 7)

There is nothing wrong with Eagle Eyes – it just didn't work for Aidan. He would be asleep and the Eagle Eyes would detect small movements and draw lines on the computer screen. There was no way to prove there was any intent with this system. Crash and burn – yet the family still let us in each week. Again, little miracles.

Jeremy Legaspi and Chip Clarke from PRC, came to consult with us on Aidan's potential for eye gaze. We slowly started

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Image 6: Aidan trying ATOM head array on power chair.

Image 7: Aidan Set up for Eagle Eyes trial.

working on eye movement up and down and side to side. We waited months for him to see a Neurologic Ophthalmologist to find out that he had lesions that prevented good ocular motor movement to his left, which was what we were seeing in therapy. Yes, somehow this is still speech and occupational therapy, but the beautiful thing about an Assistive Technology Non Profit is that you aren't bound to a domain. You just do what needs to be done and learn what you need to learn. The specialist prescribed a new eye glass prescription and we continued our highly unskilled vision therapy or "follow a highly desired item with your eyes" therapy. We presented single choices with only words and he responded. We continued to co-treat and used movement in a powered wheelchair to motivate switch use and he would drive to a low tech eye gaze selection area where things would get really crazy. He would drive to an area where he could hear jokes, an area of covered posters of favorite female artists, an area where he could watch a video, or listen to music. Slowly but surely, reliable movement crept in.

Almost a year to the day we met him, we tried eye gaze again and Aidan calibrated the ACCENT 1400 with a 5-point calibration. He moved his eyes to make selections form a field of 4, 8, 28 and even 45. It took us a YEAR, people.

Principle #4: TIME AND MONEY…BUT MOSTLY TIME

Successful implementation of assistive technology takes time and money, something none of us have enough of. Parents are often anxious to see quick results. Teams will often "test" reliability before they have had time to learn something that can often produce a "false negative". Trust with all of our clients and their family takes time. Time and presenting novel experiences helped reveal possibilities. Conversations and collaborations with others that know more about a particular area is absolutely essential. We don't dare call ourselves experts, as that would imply that we know it all and you simply can't. This field changes daily. A new app comes out tomorrow. The world of gaming is changing technology as we write this. All we can do is make the best decisions with the information we have at the time.

All of these assistive technology solutions took creativity and innovation. They took time and collaboration with more people than we can mention in a 4000-word essay. We are in awe each day that all solutions came from a place of trying something that we have never done before, with people who didn't know us, and with the understanding that failure was part of the process. On April 23, 1910, Theodore Roosevelt said "The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood; who strives valiantly; who errs, who comes short again and again, because there is no effort without error and shortcoming; but who does actually strive to do the deeds; who knows great enthusiasms, the great devotions; who spends himself in a worthy cause; who at the best knows in the end the triumph of high achievement, and who at the worst, if he fails, at least fails while daring greatly…" The pioneers in the field of assistive technology were those who dared greatly in the face of inevitable failures. As we grow up, we want to be just like them.

Until then, WE BELIEVE!

PRODUCT INFORMATION

SANTANA BLACK

iPad with GOtalk now

iPad https://www.apple.com/ipad/ Starting at $329.00

GoTalkNOW https://itunes.apple.com/us/app/gotalk-now/id454176457?mt=8 Starting at $79.99

APPlicator http://www.inclusivetlc.com $165.00

Woggle switch https://store.prentrom.com/wobble-switch?search=switch $195.00

Micro switch – no longer on the market

Power link 4 - https://www.ablenetinc.com/powerlink-4-north-america-parent $255.00

Innovative ideas from all team members – including and especially his mom who let us try crazy ideas

MAX

iPad with GOtalk now
iPad https://www.apple.com/ipad/ Starting at $329.00
GoTalkNOW https://itunes.apple.com/us/app/gotalk-now/id454176457?mt=8 Starting at $79.99
Keyguard - https://logantech.com/products/keyguard-for-ipad-apps $85.00
tomato chair with base - http://www.specialtomato.com starting at $2500.00
neck collar - http://www.allegromedical.com/orthopedics-orthotics-c528/neck-c3679.html $117.00
candy corn proximity switch https://www.ablenetinc.com/candy-corn-proximity-sensor-switch $195.00
Mini Beamer transmitter and Reciever https://www.ablenetinc.com/mini-beamer-transmitter-mini-beamer-receiver $250.00
Break the Beam garage door contraption
Alexa now called Amazon Echo https://www.amazon.com/Amazon-Echo-And-Alexa-Devices/b?ie=UTF8&node=9818047011 $179.00
Talk Points – no longer available
SeaSucker mount – Naked Flex Mount with Travel Case https://www.seasucker.com/products/naked-flex-mount-w-travel-case-black $105.00

Innovative ideas from all team members – including and especially his parents

AIDAN

Low tech eye gaze board – home made
ACCENT 1400 with NuEye and NuVoice https://store.prentrom.com/accent-1400 Starting at $16,000.00
ATOM Head Array http://www.asl-inc.com/products/atom.php Contact ASL for pricing 800.626.8698
NuMotion chair - http://www.numotion.com Prices Vary – our trail chair was loaned to us free of charge
Woggle switch https://store.prentrom.com/wobble-switch?search=switch $195.00
Micro switch – no longer on the market
Lockline mounting equipment - http://www.modularhose.com/Assistive-Technology/mh-at-kits/110241 $36.00
iPad with GOtalk now
iPad https://www.apple.com/ipad/ Starting at $329.00
GoTalkNOW https://itunes.apple.com/us/app/gotalk-now/id454176457?mt=8 Starting at $79.99
APPlicator http://www.inclusivetlc.com $165.00

Innovative ideas from all team members – including and especially our toy adaption friends

NANI

Talk Points – no longer on the market
Jelly Bean Switch - https://www.ablenetinc.com/jelly-bean-twist $65.00
ATOM Head Array http://www.asl-inc.com/products/atom.php Contact ASL for pricing 800.626.8698
Power car - http://www.toysrus.com/buy/toys/power-wheels-dune-racer-ride-on-green-w2602-11623311 $279.99
Lockline mounting equipment - http://www.modularhose.com/Assistive-Technology/mh-at-kits/110241 $36.00
APPlicator http://www.inclusivetlc.com $165.00iPad https://www.apple.com/ipad/ Starting at $329.00
Tobii I-Series - https://www.tobiidynavox.com/en-US/devices/eye-gaze-devices/i-12-gaze-interaction-with-communicator-5/ - price varies with add ons
CJT mounting equipment – CJT Mounting.com – prices varying depending on system
Power Chair - http://www.numotion.com Prices Vary

Innovative ideas from all team members – including and especially our entire mobility community and Seton high school robotics team

REFERENCE

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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

Assistive Technology in Special Education, Rehabilitation and Everyday Living

Mark Your Calendar Plan To Attend!

Early registration, parent, student, group and other discounted rates available

The Closing The Gap Conference is truly more than a conference

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.

If registering online, you will be required to enter code **RETURN** at checkout.

TVI DISCOUNT - Save $30

A **$30 discount** is available to teachers of the blind and visually impaired. This discount can be used for any preconference workshop OR conference registration and is INADDITION to any and all other applicable discounts. If registering online, you will be required to enter and apply code **TVI** at checkout. Position will be verified with employer.

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	Groups 5+ Deduct $30	Groups 5+ Deduct $30	Groups 5+ Deduct $30	Groups 5+ Deduct $30
Group Discount - 8 or more	Groups 8+ Deduct $50	Groups 8+ Deduct $50	Groups 8+ Deduct $50	Groups 8+ Deduct $50
All group registrations must be received at the same time.	Groups 20+ Deduct $70	Groups 20+ Deduct $70	Groups 20+ Deduct $70	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**

PRECONFERENCE WORKSHOPS ANNOUNCED!

Preconference workshop registration fee - $285; Registration includes the Preview of Exhibits on Tuesday evening.
Bundled Pricing Two workshops for $490 - $80 Savings (PC-1 through PC-16 only)

COME, NETWORK, LEARN – Each workshop is conducted by a nationally recognized leader in the field, providing in-depth professional skills necessary to successfully implement assistive technology in the lives of persons with disabilities.

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*

PC-13 "Help! I'm an AT Specialist and I Can't Get Up!" Creating Manageable School-Based AT Services *Keri Huddleston, M.A., CCC-SLP; Jennifer Whalley Payne, M.Ed., Assistive Technology Specialist; Elizabeth Echebarria, M.Ed., Assistive Technology Specialist*

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*

PC-16 Getting to the Core of Communication *Kelly Key, M.A., Assistive Technology Coordinator; Deidre Dobbels, M.S., Speech Language Pathologist*

Sponsored Preconference Workshop by Attainment Company

Sponsored workshop registration fee - $125; Registration includes the Preview of Exhibits on Tuesday evening. *Bundled pricing not applicable.*

TUESDAY, OCTOBER 17 8:00 AM - 4:30 PM

PC-17 Results Focused Workforce Initiatives: School - Home - School, *Janet Estervig*

Attainment Company

LEARN MORE AND REGISTER ONLINE WWW.CLOSINGTHEGAP.COM

product spotlight

Experiences & Adventures For All Abilities

THEIR STORY

Camp Courage and Camp Friendship are names that have been around for decades. Through the years, Camp Eden Wood, Camp Courage North and Camp New Hope have been added. We are now working together as True Friends, a non-profit organization focused on this mission: Providing life-changing experiences that enhance independence and self-esteem for children and adults with disabilities.

THEY ARE CAMP AND SO MUCH MORE

Their programs and services include summer and winter camp, day camp, respite, therapy riding, travel and team building. They serve individuals with physical, developmental and learning disabilities. Through partnering with other organizations, they also host a wide variety of health and education camps. With five Minnesota camps and a Twin Cities office in Plymouth, we serve nearly 4,000 children and adults with disabilities each year.

THEIR NAME: WHY TRUE FRIENDS?

Many people with disabilities don't have a wide circle of friends. We see the outcomes at camp … true friendships between campers, staff and volunteers.

They envision a world where experiences and adventures are open to individuals of all abilities. Friends are good, True Friends are better.

DIMINISHES VISIBILITY OF THE DISABILITY

Provides eye-level view in social interactions, enhancing dignity, social inclusion and self-esteem, and heightening quality of life.

THEIR MISSION:

Provide life-changing experiences that enhance independence and self-esteem for children and adults with disabilities.

True Friends is a 501 (c)(3) nonprofit organization that provides camp and respite experiences to children and adults with a variety of disabilities, along with their family and friends. Our array of services include programs for:

Developmentally disabled, such as individuals with Down Syndrome or autism

Physically disabled, such as individuals with cerebral palsy or seizure disorder

Learning disabled, such as individuals with ADD/ADHD or non-verbal learning disabilities.

WHAT MAKES THEM UNIQUE:

True Friends is committed to providing quality services to all our customers. This includes the individuals who utilize our services, their families, friends, social workers and residential providers.

They have five decades of camp experience and serve about 4,000 children and adults annually, maintaining our commitment and advocacy for people with disabilities.

They are accredited by the American Camping Association, following its requirements for certification.

They are licensed by the Minnesota Department of Health and the Minnesota Department of Human Services following their guidelines for licensing.

LEARN MORE

Tech4Freedom - The Box

THE BOX

Small device fitted with sensors obtaining and analysing information from the surroundings and transmitting it to the user through his own smartphone.

Contains a large part of the sensors of the kit, and is the brain of the entire system. Coordinates all sensors, both internal and external to the Box.

All the Box functionalities are managed from the user's Smartphone, in a user friendly way.

Simple activities like choosing your morning cereals, picking a shirt or

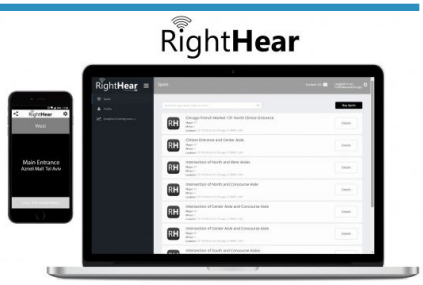
doing housework may be part of a daily routine for many but they are often out of reach for the 285 million people worldwide who are deemed to be visually impaired. Tech4Freedom helps them extend their independence and accessibility with a small black box fitted with sensors.

The box detects marked objects, obstacles, labels and colours, making it possible for the users to orient themselves, distinguish between the contents of different jars and be alerted when something in their environment changes. The box comes detects when selected persons, objects or places approach or leave the user's surroundings and creates "safe areas" where the user knows his/her relative position.

The box connects to the user's smartphone and is totally customizable to fit everyone's needs. And it even holds an emergency charger so they are never cut off from the information stream. It also gives valuable information on the user's environs detects light intensity, temperature and humidity. It transmits information using sound effects, voice notifications or alarms to the user either directly, or through a smartphone. Tech4Freedom can connect with other devices like audio-guides at museums or computers and can delimit safe play zones for children in the open air.

LEARN MORE

RightHear – An Accessibility Solution For People Who Are Blind!



ABOUT

RightHear is an advanced accessibility solution that allows its users to hear where they are, what is there, and even what's around them just by pointing with their smartphone in different directions.

THE RIGHTHEAR SOLUTION HAS 3 MAIN COMPONENTS:

- **Accessibility Spot (AS)**

Every AS contains a tiny smart and self-powered sensor based on the Bluetooth technology which allows to detect whenever a user is nearby.

It can be easily installed anywhere, indoor and outdoor, typically, on entrances, toilets, elevators, stairs or any other point of interest in the venues.

- **Mobile App – Key Features**
  - CURRENT LOCATION – General informative information about the AS location: opening hours, services, nearby obstacles, venue description, special events etc.
  - 360° ORIENTATION – Information about the surroundings of the user current location and about points of interest nearby with clear details about their direction and distance.
  - LIVE ASSISTANT – A local assistance representative that users can call for further information about the venues and also for providing them physical guidance.
  - NEARBY ZONES – List of all Accessibility Zones (AZ) nearby the user (sorted by distance). It also allows the user to navigate to an AZ using 3rd party application (i.e. Google Maps). When approaching the AZ's entrance, user will start receiving accessibility information.
- **Client Dashboard**

A content management platform (CMS) which allows the venue's owner to manage the Accessibility Spots fleet and also edit the accessibility information very easily and in real-time. The content will be immediately updated and available on the AS. Dashboard is available at right-hear.com in the menu

- CURRENT LOCATION

When entering an accessible spot you will be notified of your current location using audio guidance.

- ALERTS

RightHear will alert you whenever you are in or out an accessible area. It will also notify you about obstacles nearby.

- 360° ORIENTATION

Use the compass button while pointing your phone at any direction to magically find what's around you.

- LIVE ASSISTANT

Want more information? You are one press away from calling a local assistant that will guide you through the venues.

ADVANTAGES

- Elegant

Powered by tiny smart and self powered sensors we can easily make your venue accessible.

- Smart

A smart user-friendly dashboard which allows you to easily edit content and track usage.

- Right

Allow the blind and disabled to have their own independence while maintaining their privacy.

LEARN MORE

AccuPoint Tracking System

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AccuPoint is a movement tracking system that enables a person to control a computer even when they cannot use their hands . While most AccuPoint users control the mouse and enter text using head movement, any body movement can be used. AccuPoint tracks a reflective dot cluster that is attached to a person or a piece of clothing using double-sided tape. AccuPoint will track a wide range of movements — from very small to very large — while distinguishing tremors from intentional movements. Our Absolute Tracking technology means the computer cursor stays aligned with your head, providing better control and saving you time and energy.

AccuPoint mounts easily to the back of your computer display and plugs into a USB port. Our comprehensive software suite provides three levels of access: comprehensive typing and mouse control, typing within an app that talks, and just mouse control. The video below shows Loyd using the talking app.

HOW IT WORKS

AccuPoint tracks the movement of a small cluster of dots affixed by double-sided tape to the user – there are no wires or equipment connected to the person. While most people use the AccuPoint system for tracking head movement, the device can track anything the cluster is attached to – fingers, toes, anything!

To get started, the user sits in a relaxed position a couple of feet in front of AccuPoint. AccuPoint will find the dot cluster with its cameras and present a calibration target. Once calibrated, the cursor remains aligned to the user's head.

To select items on the computer screen, the user points to the desired spot and holds their head still – a process called dwelling. The user can set the dwell time and dwelling can be turned on and off to prevent inadvertent clicking. If the user prefers switch input to dwelling, there are two programmable switch ports on the back panel of AccuPoint for inputting left and right mouse clicks via the user's favorite switches.

The software programs that come with AccuPoint offer a wide range of settings to optimize AccuPoint for the user. You can adjust the amount of head movement that is required to move the cursor across the screen and add filtering to remove the effects of head jitter.

AccuPoint has a standard threaded mounting hole used by photographers for mounting cameras (¼-20 mounting thread). Included with AccuPoint is a small tripod. Also included is a plastic pocket for easily mounting AccuPoint to a laptop. AccuPoint weighs only 9 ounces and connects to computers running Windows 7 through 10 via a USB port.

WHAT IT DOES FOR YOU

AccuPoint gives you control of a computer by moving your head. You can move the mouse cursor, click on icons, and type in letters using our on-screen keyboard. Anything you can do with a mouse and keyboard, you can do with AccuPoint.

AccuPoint addresses issues that persons with disabilities may encounter when trying to use other head tracking technology. The Absolute Tracking technology enables the user to calibrate once per use and then the computer cursor remains aligned with the user's head. This is particularly important for users who struggle with head control.

ACCUPOINT SOFTWARE SUITE

Three diverse software programs are included with any AccuPoint system to meet a wide range of needs. Most users require no additional access software.

- **ACCUPOINT TALKING WORDS**

AccuPoint Talking Words software is designed for users who need a simple word processor with speech output but don't require access to all computer functions. A multi-featured, fully integrated, on-screen keyboard is included. New computer users and those who have greater difficulty with movement control will find everything they need to compose written messages with AccuPoint's comprehensive Talking Words software, which includes the following features:

- Quick and easy installation
- Simple to learn and use
- Large, multi-featured, fully integrated, on-screen keyboard
- Speech output via Microsoft "text-to-speech" technology
- Programmable phrases for quick access to speech output
- AccuPoint access is limited to this program, eliminating the confusion that may accompany full computer access.

- **ACCUCLICK**

This software enables computer users to simply point and click on the computer screen – ideal for those who don't require a full-featured on-screen keyboard. AccuClick allows the user to left click, right click, double click, and click-and-drag at any point on the computer display. AccuClick can also be used with communication programs such as The Grid, which handles dwelling internally.

- **ACCUKEYS**

AccuKeys enables users with more sophisticated computing needs to interact with nearly all computer applications. The on-screen keyboard remains in one spot and manages other Windows applications so that they don't interfere, reducing fatigue and increasing typing speed. AccuKeys' advanced functionality makes it a better on-screen keyboard than third-party on-screen keyboards for most users. AccuKeys…

- Enables mouse control functions (left click, right click, double-left click, and click-and-drag).
- Allows typing into word processing, email, web browser, and most other applications.

- Remains stationary in one spot on the screen, managing other programs and improving ease of use.

AccuKeys also includes word prediction (pictured above), which reduces the number of letters that must be typed to enter words by approximately 50%. The word prediction algorithms predict new words based on the previous word you have typed. The software learns over time the words that you use and the way that you use them.

AccuKeys also checks spelling and offers word alternatives based on the spell checker suggestions.

LEARN MORE

Dolphin Computer Access Launches GuideReader

BROWSE & READ 1000S OF AUDIO BOOKS USING ONLY A REMOTE!

Plug GuideReader Pod into your TV and read with large screen access and audio instructions, with all the convenience of a remote control:

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- Accessible for people with every type of visual impairment
- Simple audio instructions guide you through every step
- Enlarge icons and menus as big as you need them
- Simple remote control feels instantly comfortable and familiar

FEELS RIGHT AT HOME!

GuideReader Pod plugs directly into your TV, so you can instantly benefit from the largest screen and best audio in the house! Sit back in your favourite armchair and read books and newspapers using only your Dolphin remote. Add a speaker and take your audio books anywhere in your home – perfect for bedtime reading or whilst doing the chores.

GuideReader Pod is smaller than a bag of sugar, so it won't clutter up your home, yet can store up to 50 books and hundreds of newspapers. Plus the simple remote control feels comfortable and familiar in moments.

KEEPING IT SIMPLE!

Everything about GuideReader Pod is simple and easy to use. Simply pick up your GuideReader Remote and with the press of a single button, you're back reading, right where you left off.

Browsing for a new book is just as easy; listen to the simple step-by-step instructions read by human sounding voices. And unlike mainstream devices there's no qwerty keyboard or app store to navigate.

Plus you can never get lost – jump straight back to the home screen with the press of a single button. Setting up GuideReader Pod is even simple; just plug it directly into your TV's HDMI port and add power, it's that simple.

AUDIO & LARGE PRINT – FOR EVERY VISUAL IMPAIRMENT

Need big print? Go as large as your sight requires! Unlike mainstream bookreaders, GuideReader doesn't restrict how large you make the text in the book. Pick a text font that works for you and read with word highlighting on or off. Or if your eyes tire easily, sit back, rest your eyes and listen to the audio.

GuideReader Pod is fully accessible, straight from the box with a talking getting started instructions and mini tutorials to teach you the basics. Designed with the unique requirements of readers with visual impairments, GuideReader Pod has large print menus and icons that are high contrast and always easy to read. The human voices are easy on the ear too, carefully guiding you, step by step.

INDEPENDENTLY BROWSE AND SELECT FROM 1000S OF FREE AUDIO BOOKS

Dolphin has partnered with dozens of national and international library providers to bring audio books directly and effortlessly to your GuideReader Pod. Simply sign up to your local provider and then browse and download for free!

With GuideReader there's no waiting for books to arrive on CD or USB Pen. Independently browse, select and download your own titles. Search for a favourite author, a recommended title or browse your preferred genre. And because GuideReader Pod stores up 50 books, it's more bookshelf than just book reader.

HELP WHEN YOU NEED IT

There's no need to panic about getting to grips with GuideReader Pod – it really is simple and there's tons of help when you need it. Tutorials are included and will literally guide your fingers through the basics with your Dolphin Remote!

And if you ever forgot or need a reminder, help is always at hand. Press the Help button and there's tips for the exact spot you find yourself in – GuideReader even reads it to you. They've also included a host of videos online with handy tips, for your or family members that are supporting you.

LEARN MORE

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