

The following case study is part of a collection of inspiring stories about how educators in our communities are creating amazing opportunities for students with disabilities to learn, grow, and achieve extraordinary results. In showcasing people who are putting their passion into practice with exemplary leadership and sound intervention strategies that have a positive impact on student growth and achievement, the AbleNet Research Consortium provides a forum for honoring and sharing the efforts of inspiring educators worldwide.

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Executive Summary

By developing opportunities that are “100 percent relevant for the child,” Judy King begins the three-part approach to communication that is at the core of her everyone-is-able philosophy. An independent speech and language therapist with more than 24 years of experience, Judy lives in Hertfordshire, just north of London, England. I know also work in Hertfordshire, Bedfordshire, Essex, North London, Peterborough and Cambridgeshire. Being positive, creative and always moving students through small steps toward a specific goal, Judy uses scanning and switch technology to create choices, expand vocabulary and bring joy and participation into the lives of those she serves. She also works with people with disabilities in Guernsey (one of the Channel Islands located near France) and once a month travels to Edinburgh, Scotland.

The Call for Research

This month’s feature story is an inspiring example of how a focus on motivation, being positive and creating relevant opportunities can create success for an individual with significant cognitive and physical disabilities. Going forward, more formal research is needed to collect scientifically-based evidence on factors that promote growth and achievement with individuals challenged by complex disabilities. As you read this article, we encourage you to put on your “research hat” and consider what research questions might be asked about change and how you might become involved with that research. We welcome your ideas and encourage you to e-mail Cheryl Volkman at cvolkman@ablenetinc.com to share your research questions and interest in conducting research on any aspect of being a champion for change in the disability community.

Meet Matthew

Judy has a long history of working with individuals with complex needs who often have difficulties demonstrating their abilities. Matthew, a boy with severe cerebral palsy and cortical blindness, worked with Judy and together they discovered what he could do!

Judy started working with Matthew when he was six-and-one-half years old. At that time Matthew was not using switches, and he had no formal means of communication. Staff assumed Matthew could see basic shapes because he was able to make a choice between two toys held in front of him by looking in the direction of the toy he wanted. Matthew was a very happy child who enjoyed being with people and had clear preferences for certain music (Will Young especially!) and loved story tapes. He has a fantastic collection of bears and bear stories. Matthew’s mother worked for the BBC and produced many story tapes for him—all with fantastic expression and so motivating to listen to! Matthew’s parents had expended time and effort to make his environment stimulating with wind chimes, bells on his curtains, a bird song clock, a projector with color slides, etc.

When I first met Matthew, his parents were unaware of the possibilities of switch access and means of communication other than speech or vocalizations. They were on a steep learning curve and rose to the challenge amazingly!

Matthew is currently twelve years old and uses the FL4SH™ scanning communicator via two-switch scanning. His head switch advances the scanning light and auditory prompt, and his hand switch (a Jelly Beamer wireless switch) selects the message. Matthew requires auditory prompts to hear his choices and make deliberate selections. He currently has several overlays with recordings of music (approximately 20 seconds recorded on each location), choices of activities, choices of outings, choices of rooms and choices of people.

Read About Judy's Approach

In the following interview with Cheryl Volkman, Judy shares the core beliefs that provide the foundation for her intervention approach and success with Matthew and others. Her approach includes three elements:

- Creating opportunities that are 100% relevant for the child
- Moving in small steps toward a defined goal
- Providing feedback and acknowledgement

Cheryl:

Besides having a core belief that “Every child can communicate, participate and learn,” I know your approach is highly focused on motivation, being positive and creating opportunities that are 100% relevant to the child. Say more about this first element.

Judy:

I always strive to find something that is very motivating or provides an instant reward.

Matthew started using a Jelly Bean® switch with his right hand to access musical toys (a monkey playing cymbals, a drum or a music box) or a BIGmack® communicator (also with his right hand) for saying the repeated line in stories or songs (e.g. “Brown Bear, Brown Bear, what do you see?” or in Old MacDonald Had a Farm, “e i e i o”).

Matthew’s speech and language therapy sessions lasted approximately one hour and he worked on a range of activities to improve his skills. Matthew quickly achieved accurate switch selection for activities involving music, stories and toys.

Matthew then moved on to timing his selections with a switch and turn taking. While reading stories or singing songs, Matthew would activate his switch at the appropriate time without the need for a verbal cue (e.g., “Your turn Matthew”).

Matthew always enjoyed any activity in which an adult also participated in the session. He especially liked turn taking in songs. He loved and still loves singing the

song “Any Dream Will Do” from “Joseph and the Amazing Technicolor Dreamcoat.” The song is recorded in sections on a LITTLE Step-by-Step™ communicator:

“I closed my eyes” / “Drew back the curtains” / “To see for certain” / “what I thought I knew” / And in the east” / “The dawn was breaking” / “And the world was waking” / “Any dream will do”

Matthew repeatedly selects the Step-by-Step to activate each line of the song and also waits for the participator to sing their echo line or the “aha ah” line!

We made activities relevant for Matthew by personalizing well known stories such as “Peace at Last” (Jill Murphy – Campbell Books) and Matthew’s mother used her voice to record the double repeated line into the Step-by-Step communicator. As the story is read by a story partner, Matthew knew it was his turn to activate the Step-by-Step when he heard the words “Mum said” and then he activated the Step-by-Step twice, once for “Oh no” and then again for “I can’t stand this!”

Cheryl:

I also know that another important part of your intervention strategy is moving on in small steps and always knowing what you’re moving on to. What does that look like?

Judy:

With the second element, I typically start students out with fun and engaging activities with opportunities to participate via switch access. Then I move on to introduce simple communication by encouraging a choice between two items and then two activities. Choices are typically presented in three domains: who you want to be with; where you want to be and what you can do (People to be with, Places to go, and Things to do!).

After about six months, as Matthew became more consistent at using his hand switch, he was introduced to a second switch, a Jelly Bean®, which he activated by moving his head to the left. The Jelly Bean switch was attached to a wrist sweatband using Velcro® and the wrist sweatband was placed around the left side of his headrest. Again, motivating and fun activities were used to encourage Matthew to use his head switch.

With two switches Matthew has now learned how to use them for separate activities. For example, the head switch was connected to a Step-by-Step communicator for giving instructions (“Come here Amy / Come here Paul / I want to show you something”). He then was encouraged to activate a Jelly Beamer™ wireless switch with his right hand to access a switch adapted drum! (see photo 1).



Photo 1. Matthew turns on music with his head switch and activates a drum connected to a Switch Latch and Timer with his Jelly Beamer wireless switch.

Using two switches Matthew was able to more actively participate in several fun activities. For example, making tea (see photo 2) or “Simon Says” where he delivers instructions programmed into the Step-by-Step (e.g., “Jump up and down / Turn around / Sit down / Stand up”) and a single command on the BIGmack (e.g., “Stop” or “More”).



Photo 2. Matthew gives instructions to make a cup of tea using his Step-by-Step communicator and then says “Here’s your tea” on the BIGmack.

Matthew also used his Step-by-Step to give instructions (“Come here. What have you been doing? Switch on my music please. Switch off my music. Go away now please.”) As Matthew selects each message the partner follows the instructions.

Matthew also used the Step-by-Step to make choices of activities (“I want to listen to music. I want to read a story. I want to play with a toy. I want to have a chat.”) and “Yes” is programmed into the BIGmack communicator. Matthew selected the choice of activity and when he heard the one he wanted he selected the BIGmack to say “Yes.”

In this way, Matthew was introduced to two-switch scanning. He used his head switch to scan through and listen to the choices of activity on the Step-by-Step and his hand switch to confirm his choice with “Yes.”

From this simple scanning method Matthew made the transition to two switch auditory scanning on the FL4SH. Matthew uses his head switch to scan through his choices and his Jelly Beamer hand switch to select his choice (see photos 3 and 4). Matthew’s vision does not permit him to see symbols and so the auditory prompt is essential for him.



Photos 3 and 4. Matthew uses his head switch and Jelly Beamer to make choices on the FL4SH communicator.

Matthew’s FL4SH overlays include music tracks, rooms to go to, and places to visit, people to see, and things to do. He is also working on giving a two-word (or part) choice (e.g., “Go to the lounge” + “Watch television” or “Mum” + “Read a story.”) Matthew is therefore extending his range of vocabulary as well as developing his language expression.

The next step will be to further increase the number of overlays so we have a lot of different choices to offer Matthew. For example,

| | | | |
|-------|-------|------|--------------|
| Mummy | Daddy | sing | read a story |
|-------|-------|------|--------------|

| | | | |
|-------|-------|--------------------|--------------------|
| Mummy | Daddy | play with a toy | play some music |
|-------|-------|--------------------|--------------------|

Cheryl:

Please also share more about feedback and acknowledgement, the third important element in your approach to successful intervention with individuals who are learning to use assistive technology and AAC devices.

Judy:

Feedback to the user is so much about sharing the experience, which is very natural during turn-taking activities. We laugh with them and sing with them and never hesitate to go 'over the top' when it comes to feedback and acknowledgement. That's what's nice about duets.

Matthew loves singing duets and sharing stories and music. He likes to play musical instruments with others. Matthew will choose the instrument he wants and the person he wants to play with. He can then use his LITTLE Step-by-Step communicator to play a track of music (recorded in 20-second intervals) and also use his second switch to play the switch-adapted instrument.

Cheryl:

What is Matthew doing now as a result of the intervention?

Judy:

Matthew is positively encouraged to use switches in all situations. He uses his Smart wheelchair, which follows a reflective track via sensors (Smile Rehab Ltd.) and is activated by a single head switch, to travel up a very long corridor everyday from his residence to the classroom.

Matthew continues to use his BIGmack and Step-by-Step communicators in different situations (in the classroom, residential rooms, on the telephone) and is working on communicating his choices using the FL4SH. He is also being encouraged to develop a clear Yes/No response by vocalizing for "Yes" and "No."

Matthew receives great support from the staff at his school. They are motivated and enthusiastic individuals who follow-up suggestions and ideas for using the BIGmack, Step-by-Step and FL4SH, as well as come up with other new ideas. Staff at the school regularly uses the step by step switch to record different things for Matthew to play. Recently a blackbird in the school gardens was recorded for Matthew. Matthew regularly communicates with home via a mobile phone. Photos, texts and video messages are exchanged between home and school. Sometimes mobile phone video/audio text messages from home are recorded onto the step by step so that Matthew can access them himself. Matthew has also been known to take messages from the school office on his switch to another class, traveling in his SMART chair.

Cheryl:

In your opinion, what were the critical attitudes and philosophies that allowed these remarkable shifts to happen?

Judy:

When assessing any child it is important to observe all the positives:

- What the child enjoys
- What independent movement that child can already make that may be encouraged further, however minimal it may be
- What motivates the child
- How the child currently communicates – even just observing pleasure and displeasure responses

During work sessions if a child appears uninterested or unfocused with the activity, it is the session leader's responsibility to find the motivator! If the child is not responding then s/he is not motivated enough and another activity needs to be tried. Once you find the child's motivation, you can build the rest of the learning from there.

The end result can lead to greater independence for the student and control of his/her life, from communication to mobility, from learning to controlling the environment.

Cheryl:

What was greatest learning you'd want to pass along to others (e.g. educators, families, administrators)?

Judy:

I would say be POSITIVE! Once a person is motivated to access a switch you need to find many other fun activities to reinforce the actions the individual is taking to control his/her environment and experiences. A structured developmental plan then needs to be followed to ensure progression to communication. Actually, making choices and controlling the environment is communication! Good communication is directly linked to quality of life.

Cheryl:

Research helps us understand what works and why, as well as what does not work and why not. If you could ask researchers to develop studies that could guide others to replicate the results we have discussed in this article what might those studies be?

Potential Research Questions:

- What research could be done to demonstrate the impact of integrating the three elements identified in this study: Creating opportunities that are 100% relevant for the child, moving in small steps toward a defined goal, and providing feedback and acknowledgement?
- What criteria should a therapist use to determine when to use scanning as an access method?
- Students who are learning how to scan have a lot of issues managing reaction time, symbol processing and motor processing, just to mention a few. What are the steps in the process of teaching scanning that are critical to maintain the person's motivation so that s/he does not get bored or discouraged?
- The FL4SH communicator comes with scanning game overlays to make it fun and easy for a teacher and student to "play together" on the device. This is to help everyone become comfortable with how it works in a fun way. What strategies can a clinician use to decrease any technology fear or minimize scanning inexperience so that the all opportunities to communicate are successful and fun for all?
- Question submitted by Linda Burkhart: How is performance affected when using a Step-by-Step communicator with co-planning vs. teacher-created scripts that students use?
- Your ideas...

Read What Mary Sagstetter, Program Developer, Has To Say

Cheryl:

AbleNet designed teaching activities as accessories to FL4SH to enable new practitioners to learn the device and be working with students in a very short time. Tell us how you approached this part of the design.

Mary:

The FL4SH includes suggested activities created specifically for teachers and students who are beginning to explore the process of communication and the motor planning needed to learn how to scan. These activities were designed to motivate students and to encourage language growth and motor skill development while using the device. By participating in these activities, students have opportunities to experience choice making, to gain an understanding of symbols, and to increase the motor response control needed to access the device. In the process of using FL4SH with the activities, actions become more automatic for everyone.

Cheryl:

What process was used to identify best practices and what research guided AbleNet's recommendations for the features designed into FL4SH as well as the implementation activities?"

Mary:

Interviews with key experts and leaders in the field of assistive technology and communication were conducted to obtain their feedback for the features that they felt were critical to include. The individuals who participated in these interviews included:

Mary Ann Lowe, SLP.D., CCC-SLP, Program Professor Nova Southeastern University, Ft. Lauderdale, FL

Lisa Fitz, M.A, Special Education Teacher, Kimberly B. Haynes, MA, CCC-SLP, EBRP Schools Montgomery Center, Baton Rouge, LA

Kari Ollendick, MA, CCC-SLP, Speech-Language Pathologist, Hennepin County Medical Center, Minneapolis, MN

Leah Peterson, MS CCC-SLP at Benjamin E. Mays and Webster Elementary Schools in St. Paul, MN

Anita Schermer, MA, CCC-SLP, Augmentative Communication Specialist Gillette Lifetime Specialty Healthcare, St. Paul, MN

Deanna K. Wagner, MS, CCC-SLP, Assistive Technology Specialist at Madison Elementary School District, Phoenix, AZ, Therapy One, Mesa, AZ and Southwest Human Development, Phoenix, AZ

Patricia Wright, PhD, MPH, National Director, Autism Services, Easter Seals, Inc., Chicago, IL.

Linda Burkhart, Assistive Technology Specialist, Eldersburg, MD

We also attended session presentations by Linda Burkhart, Deanna Wagner and Karen Casey, key experts in the field of assistive technology and communication in addition to researching AAC journals specifically relating to device abandonment and scanning as a method of communication. An on-line marketing survey was also conducted with a 17% response from 85 speech language pathologists across the country. The survey helped us prioritize the features that were identified as most highly effective and expected to support their practice.

Cheryl:

How did your research and input from the field drive the final recommendations for FL4SH activities?

Mary:

Our findings suggested we create a range of activities that focus on teaching students to scan through a progression of scanning activities.

The starting point is *Errorless Language Activities* to introduce students to scanning and give them multiple opportunities to explore language through use of a single overlay. Next, *Multiple Overlay Errorless Language Activities* are used to offer a multi-facet scanning process that brings the student into a deeper level of applying language.

Finally, the *Motor Planning Activities* are introduced to focus on scanning to a targeted area.

All activities can be accessed in direct mode or any of the scanning modes—automatic scan, step scan and two-switch step scan. There are activities for both elementary and secondary students. All activities provide a replicable structure for continued scanning practice. These activities are provided as printable lesson plans and include pictures/symbols and step-by-step instructions.

Read What Linda Burkhart, Assistive Technology Specialist, Has to Say

Cheryl:

I know you are a strong advocate for students' involvement in designing the messages programmed into their communication devices. Could you share your perspective on the "power of participation" in co-planning sequenced social scripts?

Linda:

I think the Step-by-Step communicator is an important tool in this regard. It is used to have the child participate more in the creation of what goes into the communication device, so it is not just us guessing what is motivating and programming it in. This is a critical component when you consider the magnitude of empowering students to "be in choice" whenever possible and the motivation to communicate that occurs when the options have been self-selected. I think an interesting research question could look at the effectiveness of using Step-by-Step

communicators with co-planning vs. teacher-created scripts that students just use as a task.

Cheryl:

What additional comments would you have about the use of the FL4SH communicator?

Linda:

I would also like to see the FL4SH used more as an "activity specific" addition to a more comprehensive "light tech" communication system, such as a PODD communication book (Pragmatically Organized Dynamic Display – see <http://www.alltogetherwecan.com/2008/02/05/receptive-before-expressive-with-linda-burkhart/> for more information) with partner-assisted scanning, so that it is clear that communication is an all-the-time process, not just an activity. Both can be useful, and voice is powerful, but we need to provide more opportunities for kids to express what is in their minds, not just what we decide they might want to say.

Read About Resources

The following are resources that have a wide variety of AAC/scanning information, services, presentations and articles on line:

- Linda Burkhart’s website offers a wide variety of excellent material and supports for building assistive technology and augmentative and alternative communication systems. Go to www.lburkhart.com to learn more and go to the handouts page <http://www.lburkhart.com/handouts.htm> for training material on partner assisted scanning, PODD and much more.
- The YAACK site, <http://aac.unl.edu/yaack>, is a great place to do some initial learning on AAC and scanning. This site has some links that are out of date, but it has a comprehensive body of content on beginning AAC, scanning, etc. Here is an excerpt from the following article: <http://aac.unl.edu:16080/>.

“Scanning is typically used with children with motor disabilities who are unable to push or touch one of a series of buttons or pictures, but are capable of activating a switch or indicating an affirmative to a partner. If it is unclear whether direct selection or scanning is preferable for a child, then both may be taught simultaneously. This is also a good idea if a child’s motor skills are degenerating such that he or she is currently capable of direct selection, but will lose that ability in the future.”

- ISAAC (The International Society for Augmentative and Alternative Communication) supports and encourages the best possible communication methods for people who find communication difficult. It has groups of members in 15 countries. These groups

are called Chapters. It also has members in 60 other countries. <http://www.isaac-online.org/en/home.shtml>

- The Augmentative and Alternative Communication Rehabilitation Engineering Research Center is a collaborative research group dedicated to the development of effective AAC technology. Visit them and the in-depth list of publications at <http://www.aac-rerc.com>.
- Augmentative Communication Inc. publishes resources that help keep busy professionals and individuals with complex communication needs up-to-date on important developments in Augmentative and Alternative Communication. <http://shop.augcominc.com> Augmentative Communication Inc.

Meet Judy



Judy works with a range of clients with physical disabilities who all require AAC—from PMLD (Profound Multiple Learning Difficulty) to Post Graduate Degree levels. Judy works with all the main electronic communication aids (Vmax – DynaVox, Tellus and Mobi from Techcess Ltd., Pathfinder and Vanguard from Prentke Romich Company, My-Tobii with The Grid2) and programs them to a highly sophisticated level with personalized language, environmental controls and MP3 files. She also works with devices at the low technology end of the spectrum and is familiar with most switches on the market. Judy has clients using a wide range of AbleNet devices, including Jelly Bean and Jelly Beamer switches in addition to BIGmack, LITTLE Step-by-Step, iTalk2, SuperTalker and FL4SH communicators.

Read About the Authors



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Note: The authors would like to provide a special acknowledgement to Peggy Locke, Ph. D., Team Leader of Autism Services, and Bloomington, MN for her review and input to terminology, potential research questions and to the structure and organization of the final version of this case study.

Disclaimer Statement:

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