Assistive Technology Resources for Children and Adults with Disabilities

Closing The Gap

Solutions

December, 2023 / January, 2024
Volume 42 - Number 5

www.closingthegap.com

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

CONTACT INFORMATION
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volume 42 | number 4

October / November, 2023

Striving to Close The Gap Between First Responders and Individuals Who Use Augmentative / Alternative Communication Systems

In the United States 1.65% of the overall population have reported being victims of crime. Considering that research has shown that people with disabilities (PWD) are 1) four times more likely to be victims of crime as compared to individuals without disabilities and are 2) less likely to report and less likely to have their crimes prosecuted, it becomes evident that crimes involving people with disabilities are under reported. In addition, first responders who are not trained in how to communicate well with victims who are nonverbal poses additional problems in getting necessary information to bring charges against perpetrators or to assist in other types of emergency situations.

Each state has requirements for the numbers of hours and the types of training that are annually required for the different types of emergency first responders (EFRs) in law enforcement, firefighters, emergency medical services, and dispatchers. For instance, in our state of Indiana,

"the minimum basic training requirements for each person accepted for training at a law enforcement training school or academy includes 6 hours of training in interacting with:

A. persons with autism, mental illness, addictive disorders, intellectual disabilities, and developmental disabilities.
B. missing endangered adults as defined in Indiana code 12-7-2-131.3.
C. persons with Alzheimer's or related senile dementia."

When one considers the amount of information that can be disseminated on each of the above topics to fit within the six-hour time frame, it becomes evident that such training may actually contain only basic information for the emergency first responder (EFR) to have the necessary skills to meet the needs of the victims.

MARIESA RANG is a speech language pathologist currently teaching part-time at Western Michigan University. Her recently completed doctoral dissertation focused on training emergency first responders about how to communicate with people with complex communication needs. Mariesa Rang and Sharon Mankey have trained over 2000 first responders since 2016 and are working to share the training program nationwide.

SHARON MANKEY is a former licensed practical nurse and emergency medical technician. Her career in speech language pathology included working with individuals from ages 0 – 99 years and work places included early intervention, hospital, and public and private schools. She retired from Purdue University – Fort Wayne in 2020 after a career of 19 years as an assistant clinical professor and the director of the Purdue Fort Wayne Communication Disorders Clinic.

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This can be compounded in a variety of situations. In the instance of natural disasters and especially when a PWD needs to be evacuated/relocated, EFRs need to be aware that individuals who are nonverbal or those with complex communication needs (CCN) may have a communication "system" (aka augmentative/alternative communication [AAC] device, "talker," iPad, or other name for their system) that they use to communicate. EFRs are often not aware of how important these systems are for the individual in being able to respond with their personal or health information. If it is not known that these systems are used or the location of the devices at the time of the emergency, the EFRs may not be aware to send the devices with the individual. This leaves the PWD unable to communicate enroute and while at the new location. This can be a difficult situation for the person who is displaced as well as frustrating for those who are trying to communicate with them. This may result in not gathering needed information to provide adequately for that individual's needs.

At one in-service, an EFR verbalized how frustrating it would be on the part of the rescuer to not have a means to understand the individual who needs to be rescued. He noted that he would feel "helpless to know exactly what to do to assist." This demonstrates the need for a training directly related to improving the communication skills of EFRs in regard to individuals who are nonverbal or who have complex communication needs.

Should the individual who uses an AAC system be separated from a known caregiver (as in the case of the caregiver's illness or perhaps an accident where transportation to a medical facility is necessary), having access to the communication system is critical for the PWD to be able to summon assistance. This may involve contacting 911, explaining the situation to the responding EFRs, or even making arrangements for other people to step in as caregivers.

The EFR needs to understand the communication system should not be viewed as "a toy" or "entertainment" for the individual and instead be viewed as a critical piece of medical equipment used for communication to ask or answer questions. It should be viewed in the same way as a walker or wheelchair is viewed as a mobility device. All of these devices help support the individual in their independence to the fullest extent possible, so EFRs should be diligent in ensuring the individual they are helping has access to their device(s). EFRs need to be aware that communication devices may be accessed in different ways. They may communicate through direct selection or scanning by using various body parts to control their device. This will differ between individuals depending on their physical and cognitive abilities. Additionally, EFRs need to be aware that AAC devices may not have the emotion or inflection in the voice output in the same way spoken speech does. This lack of inflection may not reflect the individual's emotional state when giving information. It is important that the EFR respond to the message they are trying to convey. Some individuals will also use nonverbal language to supplement their communication, so EFRs need to be aware of that, as well.

In 2016, during an event to raise awareness of communicating with individuals with complex communication needs (CCN), it became evident that members of a local fire department did not have the necessary skills to address the needs of one of the participants. Casey, a young man with cerebral palsy who was accessing his communication device with his foot, volunteered to answer questions from people who were attending. These two firefighters were strongly encouraged to engage Casey in a conversation. While they were reticent to do so at first, introductions were finally made and Casey asked them a question. His question was, "If my dad has a heart attack and I call 911 to ask for help, how seriously will they take my call?" The EFRs were momentarily left speechless as to how to answer his question and then replied, "We don't know." Upon realizing the seriousness of the question, the firefighters requested more information to be better prepared in a situation such as this. This request led to the development of an in-service that would ultimately be shared not only with that fire department but with the county sheriff's department, the city police department of Fort Wayne, and various smaller towns and counties in the area in 2017. Given the positive response to the in-service, grants were secured in 2018, to provide the necessary funds to take the in-services to many first responder departments across the state. The value of the in-service was spread from department to department by word of mouth in addition to mail, email, and phone calls to set up trainings. By 2019, approximately 1800 EFRs in Indiana had received the training. In 2020, COVID-19 brought a stop to trainings, but some trainings took place in Montana and Michigan in 2022-23.

The training is a one and one-half hour long combination of lecture, videos, role-playing scenarios, and question/answer. During the lecture, information is disseminated concerning who uses AAC, such as individuals with developmental or acquired disabilities. Videos and lecture also highlight how individuals access their devices, either through direct selection or scanning. One key component of the lecture is the presentation of crime statistics, as this demonstrates the increased vulnerability of PWD. In addition to the crime statistics, EFRs receive guidance on facilitating conversations and social skills such as asking the individual to repeat if the message is unclear.

In person demonstrations are provided as well as videos of individuals as they access and use their own devices. The videos were created specifically for the training program. They and their caregivers were excited at the opportunity to be a part of educating EFRs on such a critical issue for them. In the videos individuals with CCN offered information and/or advice on how to better interact during conversations and were encouraged to make comments directly related to emergency situations and/or their possible needs. The EFRs reported having a better understanding of their need to be patient as the person communicates and how the AAC systems can be a reliable way to gather information about the emergency situation. Stressed during the training was the need for the EFR to listen to the actual victim and not fully rely on information received from other individuals at the scene. This is particularly important in cases of suspected abuse (phys-

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ical, mental, sexual, and other) where the other person present may be a caregiver, "friend," or family member and yet may be the perpetrator.

Anecdotally, the three groups (law enforcement, firefighters, and emergency medical workers) were noted to have varying degrees of engagement at the beginning of the trainings. (Note that typically in the state of Indiana, firefighters also receive training in emergency medical services.) While firefighters and members of the emergency medical services group responded as more openly accepting of the information, law enforcement officers remained fairly detached as noted by their postures of leaning back in their chairs, little note taking, and folded arms. When the crime statistics were introduced, the law enforcement officers leaned forward and became more openly engaged in the presented material. By the end of the in-service the vast majority of the EFRs expressed having learned skills that would help them in emergency situations with this specific population.

Eight role-playing scenarios were developed based on stories and situations discussed with a police officer and firefighter known to the authors. In these scenarios, one EFR is given the part of the "responding officer." This participant receives only what an officer would receive over the emergency radio from the dispatcher. Generally, this information is fairly minimal. Another participant plays the role of the "victim." The victim, of course has the bulk of the information and may or may not have a communication system in order to respond to the officer's questions. The purpose for the role playing is for the responding officer to determine the full extent of the situation and assist the victim in a prudent manner. The responding officer has to respond creatively in some situations, ask appropriate questions and take the time to "listen" to the nonverbal victim. It was during the role-playing exercises that the EFRs often realized the gravity of using good communication strategies with this population.

Following the role-playing scenarios, a short debriefing takes place to review the highlights of the training material. EFRs are encouraged to share their experiences with the whole group, including their successes and difficulties. They are also encouraged to ask any questions they have, and from these questions, the training program has undergone several revisions so that EFRs receive the most critical and beneficial information as possible. The scenarios proved to be beneficial as the participants worked to find suitable solutions to the situations. One officer stated that he wished he had had the training a few weeks earlier as he responded to a similar call to his scenario. During another in-service, the EFRs asked about transporting a motorized wheelchair if it is left at the scene of an accident. Despite the professional knowledge the presenters have, this question was baffling and the presenters offered to research the question to provide the most accurate information possible. In this instance, the appropriate resources were found and shared with the inquiring department, in addition to adding the newly discovered information to the existing training program.

As the word spread about the trainings, the authors realized the magnitude of the work needing to be done and began recruiting other speech-language pathologists and relevant stakeholders to take the trainings to their communities. In order to facilitate this and make the task less daunting, the authors created a website that contains all of the training materials they use. This website for First Responders Augmentative/Alternative Communication is www.fraac.com and includes the PowerPoint lecture with the videos embedded, scenarios for role-playing, and a step-by-step instructional guide on how to contact departments and conduct trainings. Additionally, a sample training was filmed and added to the website so that people interested in offering training could see it being done before doing it themselves. Other resources relevant to the topic have also been added to the website. All materials are free to download and use. While we offer these materials for others to use, we readily acknowledge that our way of doing things is not the only way for EFRs to learn this information. We encourage others who download the materials to revise them to best suit their own personalities and presentation style. We also encourage them to create their own videos so that EFRs may get a glimpse of individuals with CCN who live in their neighborhood. This familiarity may help the EFRs when working within an actual emergency.

There is still a lot of work to be done and we continue to encourage people to join us in the effort to improve communication skills between first responders and individuals with CCN. This is not the only profession where this training needs to be implemented though. Plans are in the works to educate medical and legal staff as well in an effort to meet the needs of the individual with CCN following the acute emergency.

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Evidence-Based Assessment Approach to Assistive Technology: MPT and MATCH-ACES Assessment

INTRODUCTION

Have you questioned your abilities when completing an effective evidence-based assistive technology assessment? Assistive technology (AT) assessments are comprehensive as every individual we evaluate is unique with strengths, goals and dreams, areas of needs, and personal preferences in regards to their learning and participation in daily activities. AT is a broad array of products that include specific device features, system requirements, and environmental considerations to assure good-feature match to the user. There is limited information and educational resources on the process of AT evaluations and what should be included within the assessment process. BUT… help is on the way as a new resource was released in June 2023, "Evidence-Based Assessment Approach to Assistive Technology: MPT and MATCH-ACES Assessment, edited by Dr. Susan A. Zapf, Ph.D., OTR/L, BCP, ATP; and published in the "Rehabilitation Science in Practice Series", by CRC Press. This book is your guide to an effective and evidence-based AT assessment process.

SO… WHAT IS INSIDE THIS FABULOUS EVIDENCED-BASED APPROACH TO AT ASSESSMENTS?

This resource is a comprehensive international AT assessment guide featuring the use of the Matching Person and Technology (MPT) Framework in AT assessment and service delivery in both the educational and medical settings. The book features the MPT assessment, Matching Child and Technology (MATCH), and the Matching Assistive Technology and Child-Augmentative Communication Evaluations Simplified (MATCH-ACES) assessment forms. The book also includes a focus of case study examples and resources from a student/child focus to adult learners in secondary education and vocational rehabilitation.

The book is divided into three sections. The first section of the book provides the reader with a thorough explanation of the MPT framework and the psychometrics of the MPT and MATCH-ACES assessments. This section also includes valuable information on the International Classification System of Functioning, Disability, and Health; also known as the ICF, and the alignment of the MPT framework with the ICF and the Global Cooperation on Assistive Technology. The second section embraces five chapters on the international application of the MPT in Ireland, Israel, Brazil, Italy, and Spain. Within these chapters, the authors discuss

SUSAN A. ZAPF, Ph.D., OTR/L, BCP, ATP: Susan Zapf is an Occupational Therapist and Assistive Technology Professional with over 29 years of experience working with the pediatric population in both private practice and the school-based settings. She received her undergraduate degree in Recreation, Park, & Leisure Studies from the University of Minnesota and her Master of Occupational Therapy (MOT) and Master of Occupational Therapy/Rehabilitation Technology degrees (MA) from Texas Woman's University. In April 2012 she graduated from Rocky Mountain University of Health Professions with a Doctor of Philosophy (Ph.D.) in Pediatric Science. Dr. Zapf's research emphasis is on Assistive Technology assessment and outcome effectiveness. Dr. Zapf owns The Children's Therapy Center, Inc., a well-established pediatric clinic that provides occupational and speech therapy services to children with Autism, sensory processing disorders, and other neurological needs. She is Board Certified in Pediatrics through AOTA, certified in the Sensory Integration Praxis Test, and certified through RESNA as an Assistive Technology Professional (ATP), and has completed her Level II coursework in Hippotherapy. She is the primary author of the MATCH-ACES Assistive Technology Assessment and The Service Animal Adaptive Intervention Assessment. Dr. Zapf teaches a doctoral course on Assistive Technology for Rocky Mountain University of Health Care Professionals, Doctoral of Science in Rehabilitation: Pediatric Science Program. Dr. Zapf has presented throughout the United States and Internationally on assistive technology assessment and implementation. As an occupational therapist, she is passionate about helping children and their families develop skills to reach their full potential and she believes that occupational therapy and assistive technology can be powerful interventions to assist in this process.

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the adaptions of MPT and MATCH assessments and provide examples of assessment forms and case examples. The third section of this book provides an in-depth review of the research application on the MPT outcomes in cognitive rehabilitation, secondary education, vocational rehabilitation, and pre-inservice education for health care and educators. This section also includes a chapter on personal realization of the benefit of technology. Also discussed within this section are strategies in conducting an effective interview with the AT consumer to assure user-involvement.

THE MATCHING PERSON AND TECHNOLOGY FRAMEWORK:

The Matching Person and Technology model developed by Dr. Marcia Scherer is a user-centered framework that that aims to match the person and AT based on personal and contextual factors that can impact the person's use of AT (Scherer, 2005; Scherer & Craddock, 2002; Scherer, 1998, 1997). The framework is designed as a rotating wheel (Figure 1) in aligning with the idea of a continuous and dynamic model. The center of the wheel is the goal of matching person/child to appropriate AT. Within the first layer of this framework is the person or consumer of AT and personal factors that can contribute or influence a person's use of AT, such as lifestyle and customary routines, history of using AT, and psychosocial considerations such as motivation and flexibility. These factors are based on research that resulted in the development of the MPT and MATCH-ACES assessments (Zapf et al. 2016, Scherer, 2005; Scherer & Craddock, 2002; Scherer, 1998). The next layer is the milieu (environmental) factors that can impact a person's use of AT. This is an area often overlooked but plays a critical role in the use of AT. If the environment does not support the AT, it is likely that the AT will not be used. Factors identified in the environmental/milieu include; the attitudes of others, environmental structure, the culture, economics, and political laws and policies that affect the service and delivery of the AT. The third layer of this comprehensive model is technology that is being considered for the person. This layer includes specific device features, usability factors of the device, performance, appearance, availability, and cost, all of which can impact the selection of AT and realization of benefit from use. The outer layer of the MPT process is the continuous process of evaluating, selecting the device, accommodating needs and potential changes with service follow-up, and use of AT. When all three layers are assessed properly there is a better chance of meeting the goal of matching the person and technology.

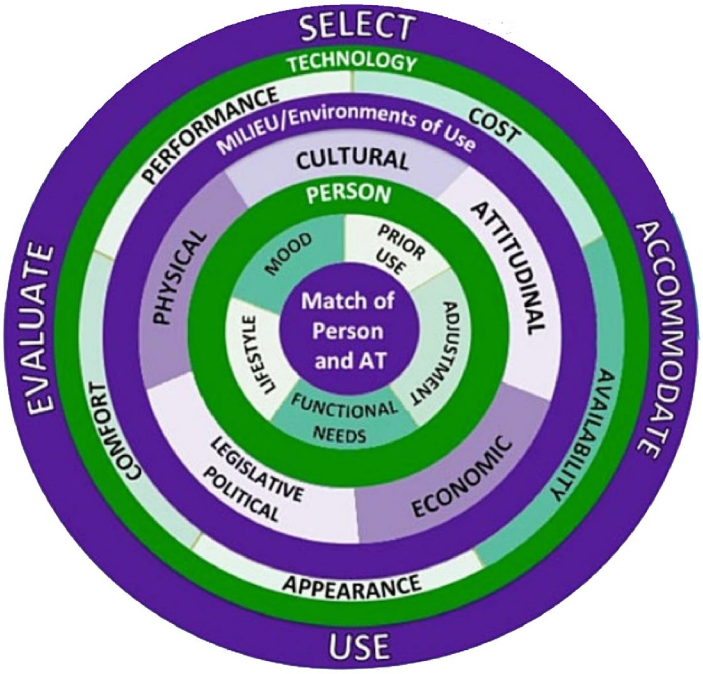

Figure 1.

SO HOW DOES THE MPT ASSESSMENT FRAMEWORK DIFFER FROM OTHER MODELS?

This question was posed in a presentation at Closing the Gap Conference in 2023 as many educational AT Teams utilize the SETT (Student, Environment, Task, and Technology) Framework (Zabala, 2005) within the school setting. Both the MPT and SETT assessment frameworks are valuable, and each AT provider will need to determine which evaluation process meets their requirements and the needs of the client/student they are assessing along with best consideration practice in using a person-centered and evidence-based assessment process. The models are compatible and the MPT was used to help inform the SETT. At the ATIA conference in 2004, Dr. Scherer, Dr. Zabala, Dr. Reed, as well as other AT colleagues discussed current models of AT assessment and commonality of the person, environment, and technology concepts that were integrated across each of these AT models (Zabala et al., 2004). While these AT assessments complement each other with a goal to provide professionals with options for AT evaluations, there are clear differences between these assessment frameworks and the research validating the frameworks. The SETT is a framework whereas the MPT is a framework with an accompanying research-based assessment process that includes specific forms to guide support selection and then outcomes of use. As an Assistive Technology Professional (ATP) in both clinical and educational practice, I utilize the MPT process to guide my evaluation process because of the evidence to support the process, person-centered focus, and the flexibility in the assessment forms to streamline the process.

As stated above, one value of the MPT assessments is the depth of research to validate this assessment process. The MPT process

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is the expansion of this assessment across the educational and rehabilitation field, at a national and international level, that has cultivated a growing body of evidence over the past 25 years. The MPT process has been found to be a reliable and valid assessment for use by persons with disabilities (ages 15 and older), and it is applicable across a variety of users, cultures, and settings. Separate versions exist for early intervention children (MATCH) and special education students (MATCH-ACES). The MPT and MATCH-ACES measures have good psychometric properties, and numerous studies have demonstrated their reliability and validity (Federici et al., 2021; Zapf et al., 2016, Scherer, 2005a; Scherer & Craddock, 2002; Scherer & Cushman, 2000). The use and non-use of technology as conceptualized in the MPT model have been validated by many researchers and authors globally who represent the fields of rehabilitation engineering, occupational therapy, physical therapy, speech-language pathology, psychology, and education (Federici & Scherer, 2018). The MPT website (https://sites.google.com/view/matchingpersontechnology/home?authuser=0) provides details about translations and validation studies conducted over the years (Scherer, 2022).

The MPT was a catalyst in the move for user-centered AT assessments and has been foundational in educating other professionals on the importance of including the consumer from the beginning of the assessment process. The MPT model utilizes assessment forms and an interview process that facilitates dialogue between the AT evaluator, the user/client and support team to target the users dreams, goals, strengths, areas of need, predisposition factors that can influence AT readiness and usability. The MPT and MATCH-ACES assessment forms are designed to lead the team in a meaningful discussion and a consideration process that highlights if the user is ready for AT and what factors one should consider when assessing technology features and personal characteristics. In an AT course for professionals learning AT assessments the students were taught the MPT Framework and assessments. One student reported "the MPT process helped the team understand the groundwork that needed to be done before jumping into implementation of AT solutions". This student further stated, "the team missed the perspective of the user before we went through the MPT process. It was an eye-opener to me that a formal assessment procedure is so important, so that we don't skip any details" (Sax et al, 2023)".

The International Classification of Functioning, Disability, and Health (ICF) is adopted as the worldwide standardized language with which to frame individual functioning and disability (WHO, 2001). Users of the MPT model have found common ground as the contextual constructs of the ICF aligned with the MPT framework, therefore, supporting an international and authoritative framework for further confirmation of the strength and scientific rigor (Scherer & Sax, 2005). Inherent in the MPT model of a user-driven and person-centered AT assessment process for human functioning and disability is the idea that both health determinants (impairments associated with health conditions such as diseases, injuries, and aging) and milieu determinants (including AT) create the experience of technology adoption, acceptance, satisfaction, and benefit (i.e., the various AT use outcomes) (Scherer, 2017b). Items on the MPT assessment forms have been successfully cross-walked to the ICF that support a universal assessment process, measurement of AT outcomes to support participation, and providing scientific rigor for potential research in the field of AT.

The MPT also aligns with the Global Report on Assistive Technology by the World Health Organization (WHO, 2022). The report provides a key blueprint for advancing AT products and services globally, and outlines 10 overarching recommendations that will enable this AT initiative. The MPT supports three of the recommendations within this global initiative as outlined below:

- **Recommendation 3:** *Enlarge, diversify, and improve workforce capacity. Knowledge, skills, motivation, attitudes, and deployment of personnel working in the assistive technology sector are keys to success.* In support of Recommendation 3, the MPT and MATCH-ACES assessments provide personnel with tools to foster user engagement in the assessment process and help ensure providers address and assess key influences on technology use and realization of benefits.
- **Recommendation 4:** *Actively involve users of assistive technology and their families.*
- The MPT and MATCH-ACES assessments. The MPT and MATCH-ACES assessments were designed to be used to actively involve users of AT and their families or caregivers in ensuring AT recommendations are made on the basis of the user's goals, preferences, and priorities considering environmental factors of relevance. There are separate forms for the consumer's care or educational team to compare perspectives (provider, family member, caregiver, and educator) as the identification of differing perspectives can help overcome barriers to engagement in the AT selection process.
- **Recommendation 8:** *Develop and invest in enabling environments. Enabling environments are critical for users' independence, comfort, participation, and inclusion, as they allow users to use their assistive products as intended with minimum effort by the user or caregiver by including strategies for re-assessment and measurement of AT outcomes.* The MPT and MATCH-ACES follow-up forms are used as outcome measures. These forms are useful in identifying environmental obstacles and barriers and providing strategies to facilitate AT success through the collaboration of the AT user, AT evaluator, and other team members.

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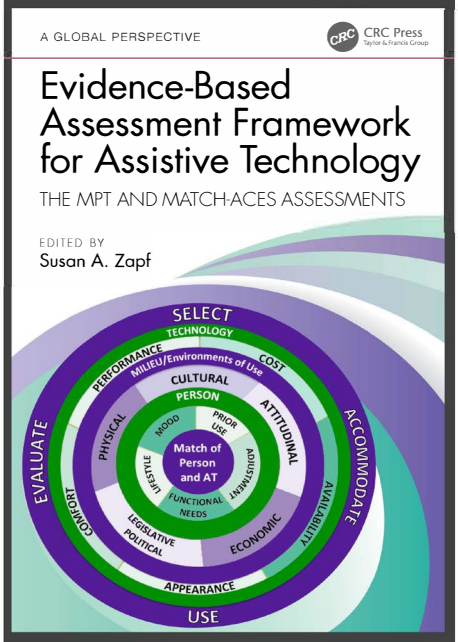

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Evidence-Based Assessment Framework for Assistive Technology

The MPT and MATCH-ACES Assessments

Edited by **Susan A. Zapf**, Rocky Mountain University of Health Professions, USA

The primary focus of this book is to educate the reader on the Matching Person and Technology model and assessment process that will guide the reader on consumer-centered assistive technology assessment and outcome measures designed to be used for individual of all ages and all types of disabilities. This book is targeted to the AT providers and policy makers (healthcare, education, and rehabilitation engineering), the university student pursuing a career in these areas, and the consumer of assistive technology.

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AT OUTCOMES USING AN MPT PROCESS:

The assessment of AT outcomes is of interest to multiple groups of stakeholders from user, to their caregivers, service providers and policy makers. As stated in the book (Zapf 2023):

The MPT and MATCH Assessment Processes, as evidence-based process standards and educational frameworks for improved interdisciplinary service delivery, have been shown through over 30 years of academic and gray literature, conferences, and books to support the capacity building necessary to assure meaningful outcomes for the provision of AT. The use of the MPT repeatedly result in a good solution and outcome for the technology user and, in many cases, directed a modified process.

Such outcomes, as the ultimate measure of value, can only be achieved when person- focused assessments are a critical component of the service delivery process. The MPT process and assessments will be used when both provider and user gain from its use and achieve a true win-win outcome such as engagement in the process, the avoidance of mistakes, and frustration arising from failed results (Sax et al., 2023, pp 215-216).

CLOSING COMMENTS:

The MPT family is a group of dedicated professionals in assistive technology around the globe with a mission to provide effective consumer-based assessments to individuals with disabilities to help them achieve their goals and dreams. The MPT and MATCH-ACES assessment process is a valuable tool that can guide you in an effective consumer-focused assessment process that benefits the potential AT user and team. The Evidence-Based Assessment for Assistive Technology: The MPT and MATCH-ACES Assessments is a resource that provides the reader with a foundation of the framework and examples of use from child to adult, with a national and international focus. Dr. Scherer and I invite you to our MPT family!!'

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RECENTLY ADDED WEBINARS

Adapt, Play, Connect

By Teresa Glardina and Courtney Grimes

Students with Complex Needs are often unable to participate or access games/activities during school events. Students with Complex Needs are often placed to observe play. A few key purchases and an imagination can change the role from observer to participant!

This interactive workshop will both outline the importance of accessing assistive technology in play for all individuals and discuss techniques for how to put this into practice. Presenters will demonstrate the effectiveness of including assistive technology that can be utilized for play, along with specific examples. Examples will include students/clients with complex needs evidenced by physical/motor impairments, intellectual disabilities, and extraneous factors such as cortical visual impairment.

Presenters will identify key strategies used within a holistic setting to implement these strategies within school, home, and community settings. Discussion will include specific information related to training new team members, family members, etc. for populations outlined. The presenters will open the topic for participants to discuss their own experiences with various populations in AT-based intervention. will be shared with participants.

Effective Teaching Strategies: Working with Complex Communicators

By Lindsay Hendricks

This webinar will start by reviewing a few key terms and concepts such as core/fringe vocabulary, robust AAC systems, presuming competence, and functional communication. These ideas are essential in providing the most effective teaching strategies to those with complex communication needs, and will be integrated into the discussion as they apply.

Participants will learn to improve their communication partner skills and a variety of strategies that support the development of communication skills in others. Discussion will focus on communication partner skills and passive teaching techniques. These ideas will then be applied to day to day activities that can be used at home, in therapy, or at school!

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Technology for people with complex needs and congenital deafblindness: A mission impossible?

When a person has congenital deafblindness, living in a world that relies heavily on sight and hearing can be quite a struggle. For those with complex needs and congenital deafblindness, participating in this same world might seem like an impossible mission.

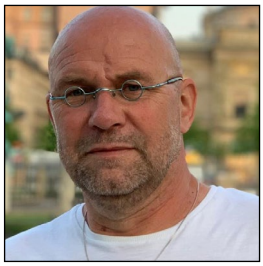
Technology can be the key solution to the daily challenges and battles that individuals with cognitive impairments and congenital deafblindness face. Our unique approach to technology and congenital deafblindness inspires professionals, leading to tailor-made solutions and opportunities for many other individuals with congenital deafblindness.

In this article I would like to showcase practical examples, guide you through the creative process, and illustrate how our unique approach to technology can help move from a 'problem-to-solution' for people with congenital deafblindness. I will demonstrate how we aim to increase self-sufficiency and reduce the 'mission impossible' scenarios that this target group often encounters.

For individuals with multiple disabilities in addition to sight loss, overcoming the challenge of enabling access and independence requires specific adaptations and strategies. Bartiméus FabLab has developed a range of innovative products and is leading ongoing projects specifically designed for people with multiple disabilities and visual impairments (MDVI).

It is our belief that every client should have the opportunity to participate in the digital society, and by not introducing them to technology, you deprive people of this opportunity.

In this day and age, we are living in a digital society. Various technologies have made our lives more convenient, enabling us to accomplish tasks we could never do before. Most of the time, we don't even realize how rapidly technology is advancing.



ERIC VAN HEUVELEN - I work in the Netherlands at FabLab Bartiméus, which is a special task force within our organization dedicated to adapted and accessible ICT, technology, and tools for people with multiple disabilities.

The 'Bartiméus Fablab' has been in existence for almost 20 years. This fabrication laboratory has become the epicenter within our organization for adapted and accessible ICT, technology, and tools for people with multiple disabilities. The mission of the FabLab is to improve the quality of life through technology and to apply technology and tools to enhance independence and self-reliance.

Our motto, slogan, or belief is: 'We can't doesn't exist'.

In addition to my training as a nurse, I am also educated in microelectronics and computer technology. After working for many years with people with intellectual disabilities, I made the switch to working with people with visual impairments. In the late 90s, I co-founded the ICT advice and training program within Bartiméus, and after approximately 15 years, I started working at the Bartiméus Fablab.

In addition to research and advice on the use of technology for people with visual and intellectual disabilities, I am involved in developing, designing, building, and implementing new technologies for people with deafblindness.

I am a speaker and presenter at several national and international conferences, such as VISION, DBI, ICEVI, EASPD, CSUN, and I am a co-founder of the Deafblind International Technology Network.

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Technology surrounds us in various forms. We've become reliant on even the simplest forms of technology, such as automatic car keys that unlock doors, coffee makers that brew a fresh pot upon your return home, or watches that track your daily steps. Using these basic technologies has become the new norm. With just a button click or a swipe on your phone, the world is at your fingertips. Accessing information is effortless for you and me, making life more convenient and, in some cases, safer. Our reliance on technology is evident.

The impact on our daily lives is significant when these technologies fail to function. Imagine a day without Wi-Fi, smartphones, or tablets – it seems unimaginable. We'd probably have a rather challenging day if that were to happen.

However, if I were to pose the same question to a person with congenital deafblindness, the impact would be minimal compared to us, as they have limited reliance on technology. So, there is a digital divide. Why?

There are four main reasons:

- When someone has congenital deafblindness, the common solutions for the visually impaired are often too complex:
    - To use a braille display, one must be able to read braille.
    - To use audio description, the ability to hear is required.
    - Many solutions designed for individuals with learning difficulties are not useful because they rely on visualizations and animations to compensate for written text.
- There are almost no ready-made solutions specifically developed for this target group. Commercially, the demand is not yet sufficient to attract suppliers and create a market.
- There is limited advocacy from the target group and their network regarding what they want and why they want it.
- Implementation is also challenging. Even when a solution is found, it often can't be used immediately. For people with congenital deafblindness, learning new skills takes time, requires support, and demands considerable patience from all involved.

Almost everything is possible; however, there is a lack of connection between users and developers. There is hardly any exchange of ideas and solutions, and most solutions are custom-made. Consequently, solutions are often expensive. As explained, this is one of the causes of the digital divide.

Assistive technology is intended to enhance the quality of life, promote participation, and foster independence for individuals with disabilities. For those living with deafblindness, the interactive effects of combined vision and hearing impairment often hinder the usability of assistive devices.

When we are asked for help in finding a (technical) solution, the FabLab strategy is as follows:

First, we search for products that are already on the market, such as consumer electronics and dedicated technological aids. Sometimes, it's possible to adapt an existing product to make it accessible and cater to the needs of an individual.

If we can't find a solution, we conduct research and query within our network to discover whether solutions have already been developed, prototyped, or if suitable start-ups exist. In some cases, co-creation can help prevent reinventing the wheel. When it's not possible to use any of the aforementioned methods, the only option left is to develop custom-made solutions.

So, when the only option left is to create custom-made solutions, we have to design and build. It's crucial to collaborate with all disciplines involved, including caregivers, behavioural experts, occupational therapists, parents, and, as much as possible, involve the client during the development process. We also closely cooperate with the Expertise Centre of Deafblindness at Bartiméus (ECDB), where knowledge about (congenital) deafblindness is centralized.

There are several ways to develop custom-made solutions for individuals with deafblindness.

In this article, I would like to discuss the following:

- Pencil Case Sensor: This assistive device builds upon existing skills and incorporates technology without the client's awareness.
- The Disk Timer: This device emphasizes the importance of learning skills and can be particularly beneficial for clients with reasonably high cognitive abilities.
- Proxacare: a system designed to help deaf-blind individuals sense the presence and approach of others

PENCIL CASE SENSOR:

Imagine a deafblind client (completely deaf and blind) with an intellectual disability. This individual always seeks physical contact with their caregiver, necessitating constant one-on-one care throughout the day.

Over the years, brief moments of no contact or touch became possible, and at times, the client would even push the caregiver away. But when the client called for the caregiver, an immediate response was expected.

Gradually, the client learned to use a pencil case as a way to signal their need for contact. This particular pencil case was always accessible to the client. When they picked up the case, it indicated their desire for contact, a communication method that had been in place for several years.

However, if there wasn't an immediate response when the client picked up the pencil case, they would exhibit undesirable behavior.

Unfortunately, it wasn't always immediately noticeable to the caregiver when the client had picked up the pencil case. That's when they turned to the FabLab for assistance in solving this problem—how to ensure they don't miss the client picking up the pencil case.

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Our starting point was to align with the client's existing habits and activities, adhering to established working methods. So, we created a new signaling device, designed in the same shape as the client's familiar pencil case. However, this new version featured a triangular shape to ensure it could stably rest on a table.

Pencil case with corresponding buzzer.

Inside the pencil case, we integrated sensors that would respond as soon as the client picked up the case. As a result, a buzzer, connected to the pencil case sensor and built into a receiver that the caregiver carries, would sound. This served as the signal for the caregiver to understand that the client had picked up their signaling device and wanted to establish contact.

DISK TIMER:

Time and time perception are subjects that often raise numerous questions. It's easy to understand that estimating the time of day is particularly challenging for individuals who are blind. We can usually make rough estimates, such as morning, evening, or night, based on various cues. However, for those with severe sensory impairments, and especially those with cognitive impairments, grasping the concept of time can be quite abstract.

Gaining an understanding of the passage of time can be challenging to explain. Concepts like 'even,' 'later,' or 'in a minute or five' are clear to us, but for individuals with severe sensory impairments, they remain highly abstract and difficult to comprehend. If there is also a cognitive impairment, this challenge becomes even more pronounced.

Technology can offer a solution. A teacher of a 5-year-old deafblind student approached the FabLab with a question: Could they provide a tool that offers insight into the passage of time and the remaining time for activities? This request reflects a broader need for tactile information about the passage of time, particularly for those who can't use traditional visual time timers.

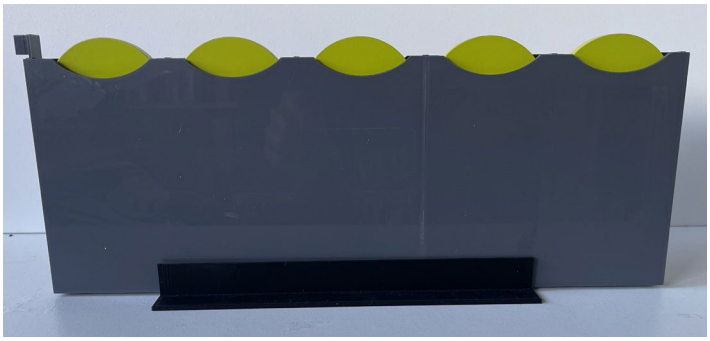
Our starting point was to design a tactile time timer suitable for a student with deafblindness. This timer could also be used to varying extents with vision and hearing, depending on individual needs.

However, using a timer during an activity can be challenging. Constantly breaking away from an activity to interact with a tactile timer can be distracting. To address this, we developed a physical timeline on which "something" happens during the set time, for instance, "something" disappears every one, two, or five minutes. This feature can be supported with tactile information, such as vibration at each "step."

Based on this starting point, we built a minimal viable product (MVP) for the timer. It consists of a single row inspired by the game "4 in a row." Falling discs indicate the passage of time. Filling the row with discs, and involving the student in this process, serves as a way to introduce the concept of time passing in a familiar and engaging way.

Each disc is substantial enough to be felt when present: the discs protrude slightly above the top edge to allow easy detection by touch. When a disc is absent, there is a noticeable "hole" that can be detected by touch, providing a clear indication.

Similar to existing timers, our timer begins with all discs present. As time progresses, the discs fall sequentially, with each one representing a portion of the total time. For instance, if there are five discs, they each fall at intervals based on the total time divided by 5. When all the discs have fallen, there are five "holes" left.



The MVP of the disk timer.

Every time a disc falls, there is a brief vibration, which can be felt through a vibrating pad placed within a stuffed animal (a seal). This seal can be positioned on the table or on the student's lap. When the last disc falls, a different (longer) vibration is felt, and a sound signal notifies the teacher.

PROXACARE:

Imagine a 3-year-old boy with deafblindness who is bedridden. Every caregiving moment, such as changing his diaper, startles the boy.

His parents reached out to the FabLab for a solution to help him feel more at ease during these interactions. They wished for a way to make caregiving moments known to him in a gentle manner.

The FabLab developed Proxacare, a system designed to assist deaf-blind individuals in perceiving the presence and approach of others. It involves a sensor, which is designed to look like a flower to fit nicely in a child's bedroom. This sensor is connected to a vibrating pad, placed, for example, in a pillow.

When someone enters the child's room by opening the door, the sensor detects their presence and activates escalating vibra-

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Flower with the proxacare sensor.

tions in a pillow the child is lying on. As the person approaches the child, the intensity of the pillow vibrations gradually increases, gently introducing the parent or caregiver's proximity in a pleasant way, preventing the child from feeling frightened or startled.

Working with the Proxacare requires a lot of guidance due to habituation time at persons with deafblindness.

The Proxacare is a tool that is accompanied by a corresponding intervention plan. This plan outlines how the tool should be introduced to individuals with deafblindness and the training process involved. In our opinion, without this intervention plan, Proxacare cannot be effectively utilized.

Learning to use this tool necessitates an extended adaptation period, specifically focused on habituation during usage. The individual with deafblindness must comprehend the meaning of the signals emitted by Proxacare and understand the ultimate consequence: contact with the caregiver.

Working with Proxacare demands substantial guidance, given the adaptation period required for individuals with deafblindness.

In our pursuit of solutions and problem-solving through technology for people with deafblindness, we have become increasingly inventive, yet we have encountered both significant and minor challenges. Valuable lessons have emerged:

- Extensive interaction between developers and users/caregivers during the development process is essential and highly valuable. This allows for timely adjustments, ensuring that the final solution aligns with the initial problem.
- Implementing technical tools or solutions for people with deafblindness is a time-consuming process. It involves taking small, deliberate steps, with the critical aspect of feeling progress at each step. It's important to maintain sight of the ultimate goal.
- As previously mentioned, there is a notable absence of ready-made solutions specifically tailored for individuals with deafblindness and intellectual disabilities. This presents a considerable opportunity for developers.
- Collaborating, learning from each other, sharing knowledge, and engaging in international cooperation are of utmost importance

Considering the last point, in 2020, we initiated the DBI Technology Network. This network focuses on the broad field of technology that is applicable to individuals with deafblindness, whether acquired or congenital. The network's goal is to identify technology that promotes self-determination, communication, independence, and entertainment.

To accomplish these objectives, we aim to make existing and new technology accessible across various domains, including ICT and audiology, for individuals with deafblindness. We gather needs and ideas from individuals with deafblindness related to this topic, and then identify technical solutions through adjustments to existing applications or the development of new technology and promote scientific research on haptic perception and haptic technology.

And also we want to share information about existing devices and applications in the context of individuals with deafblindness and the professionals involved.

The FabLab actively participates in this network, and through the exchange and combination of knowledge and experiences, as well as collaborative efforts, we aim to provide technical solutions for individuals with deafblindness.

In line with our beliefs, we like to say that there is always a solution to any problem.

Three custom-made solutions have been presented to you in this article. The Bartiméus FabLab has already developed more solutions, and undoubtedly, more will follow. I hope it has become evident that through the application of technology and the use of appropriate tools, we can enhance the quality of life, as well as increase independence and self-reliance for people with (congenital) deafblindness.

In the title of this article, I pose the question: Is technology for people with complex needs and congenital deafblindness a mission impossible?

Hopefully, I have demonstrated that technology for people with complex needs and congenital deafblindness is a mission possible! ■

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100 Engaging Switch Activities On a Budget

Students who require alternative access in order to engage in their educational program, social interactions, and recreation and leisure activities need repetitive yet varied opportunities to practice and refine their switch skills. These activities should be integrated throughout the school day. However, finding a variety of engaging activities within the constraints of most school district budgets can be quite challenging. In this article, I will discuss how you can create motivating switch activities using only four tools that can be easily incorporated throughout the school day. You will need a switch of some sort, such as a small Jelly Bean, Specs Switch, Plate Switch, Proximity Switch, or Pillow Switch. I will focus on ways to add variety through repetition using Two LITTLE Step-By-Step voice output switches, a PowerLink4 or an earlier version, an All-Turn-It Spinner, and a switch-adapted pouring tool. I prefer the flex mount. There is also a less expensive version that works well. (Image 1)

Learning switch skills is quite challenging for the children we teach. Students must coordinate many skills to successfully activate the switch and make something happen. These skills include motor, sensory, motor planning, cognition, social and emotional, and language skills. Initially, learning to engage in their environment using switches requires a high cognitive load to coordinate all of these skills. It's crucial that the outcome of activating the switch is immediate, highly impactful, and well worth the effort. Otherwise, students may choose not to expend

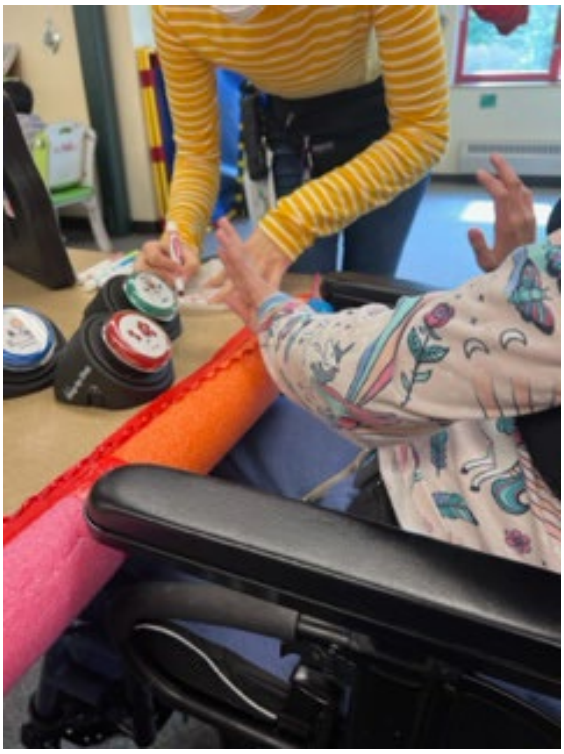

Image 1: Student activating Step-by-Step voice output switches to direct a caregiver during drawing and coloring activity

HEIDI G. BRISLIN, MS-OTR/L, Heidi is an Occupational Therapist and Assistive Technology Specialist for the Olympic Education Service District 114 and the Edmonds School District. Heidi also owns a private practice Heidi Brislin OT Consulting in Kingston, WA. Heidi has extensive experience in school-based practice and outpatient adult rehab settings. She is a graduate of Boston University and University of Washington. Heidi is passionate about teaching teams to create authentic learning opportunities for all children, improving literacy skills, switch access, power mobility and helping children become autonomous communicators.

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the effort to engage in the activity. This often results in the student's team mistakenly thinking that they lack adequate skills, such as cause-and-effect, to develop switch skills as a method of access. In reality, it's often a lack of creativity that results in the disengagement of the student.

From the very beginning, we must presume competence and assume that every switch activation is intentional. Each switch activation should be seen as a teachable moment where we describe what happened when they touched the switch and encourage them to try again. When discussing switch access and cause-and-effect skills for students with complex motor skills, Karen Kangas advises, "Don't get stuck in believing that the student does not know cause-and-effect; all humans are born with cause-and-effect. Model, demonstrate, and choose a switch that you know will be successful" (Kangas, 2012). When starting, it's important to determine the best place to position the switch. Clinicians should rely on their clinical observation to assess the student to identify where they move their body that may be potential switch sites. Often, the hand is not the most efficient access site for the student. Teams need to consider which movement allows for the most engagement with the activity, the lowest cognitive load, and the least motor planning and accuracy to execute the movement. Potential switch placements include the head, nose, elbows, chest, knee, and foot, among others. It may take time for the team to determine the best switch access site, as the initial choice may not always be the most efficient one. (Image 2)

Image 2: Student activating switch with her nose. Second switch site is the right side of her head

Once a switch site is determined, it's crucial for teams to select activities that are interesting and engaging for the student. These activities should be centered around age-appropriate, meaningful, and goal-directed play and leisure activities. Repetition with variety is key to keeping the student motivated and engaged, as a wide body of research supports that slight changes during repeated play sessions help children master skills faster. If educators and therapists provide a child with only one switch site and one or two activities to practice a new motor skill, it may lead to a perception of a loss in motor skill, decreased motivation, inconsistent performance, and a lack of cause and effect. In reality, it has very little to do with the student, but rather the need for play-based, fun activities with built-in repetition and variety (Bean, Ian, Switches Away From the Computer, 2022). We all are born with cause-and-effect. Our students do not learn cause-and-effect; they need to learn that they can have agency over their body to make amazing things happen.

When you head out to see a student that you'd like to start working on switch access skills, you will need a switch, Step-by-Step voice output switch, an age respectful book, and a presumption of competence. If the book has a repeated line, record that line in multiple voices on a Step-by-Step switch. If the book doesn't have a repeated line, record some comments about the story on the Step-by-Step switch and start reading with your student. You should model when to say the line while reading and then let the student know that you have placed the switch near their body part, allowing them to use the switch to read the line in the book. Model how to activate the switch, and give the student ample wait time, at least 10 seconds, to activate the switch. If the chosen location doesn't work after several tries, communicate with the student and suggest trying another placement. It should always be framed as a mistake in switch placement, not the student's inability to activate the switch. (Video 1)

Video 1: https://www.youtube.com/shorts/5sCava4b_-s
Initial switch eval for a student. Activity was shared reading using the book Don't Push The Button by Bill Cotter. The Step-by-Step is connected to a mechanical switch that is placed at the student's head. Recorded on the switch is the phrase, "Don't touch the button" in several voices.

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After determining the appropriate switch placement, you can begin with fun activities using the Step-by-Step switches, which can be integrated throughout the school day. (Video 2)

Video 2: https://www.youtube.com/watch?v=ooMRi5FWdC4
Video tutorial by Brenda del Monte demonstrating how to record on a Step-by-Step switch.

These communicators are essential tools for switch users and can be mounted on a student's chair or under their tray table. They allow you to connect the child's switch directly to the Step-by-Step, which can be used to provide directions, comment, count, answer/ask questions, or share about the day, among many other possibilities. The Step-by-Step lets you record three different levels of messages, each with multiple phrases on each level for added engagement.

USING A STEP-BY-STEP COMMUNICATOR THROUGHOUT THE DAY

COMMUNICATION:

1. I love to use step-by-step switches to give my students a method of saying yes and no when communicating with teachers and peers in the classroom. This is a great way to get students engaged in activities throughout the school day. I will record multiple ways to say yes and no such as, "Yep, that's it," "you got it," "for sure" or "no way," "that is a hard pass," "nope").
2. Making comments during activities, (That's Awesome!, I like that!, Let's do it again!)
3. Work with the student using their yes and no to make choices about what they want to report to their family about their and then record that on the step by step switch.
4. "That's the one." When doing partner assisted scanning.

READING:

5. Record comments about the book they are reading during shared reading.
6. Repeated lines in a book or song.("Chicka Chicka Boom Boom, "Will there be enough room?", "He huffed and he puffed") (Insert repeated Line document).
7. Direct the reading partner to turn the page.
8. Using the recorded yes/no responses to choose a letter of the day to work on.
9. With the recorded yes/no responses to make choices to change the first letter of a word to make new words.
10. Use yes/no to answer questions about the story (was the main character a boy, girl, child, or animal).
11. Select a book that they would like to read using their yes/no switches.

WRITING:

12. Responding when using an Alternative Pencil (See video 3).
13. Completing predictable chart writing. Using partner assisted scanning and a robust AAC system, verbally list categories and allow them to respond yes/no. Once in the selected category read off choices and write the selected one on the chart. (example, "Sharks are_____." choices could be sizes, colors, emotions/feelings, etc…)
14. Using yes/no buttons and all 26 letters of the alphabet, have the student pick the first letter of a word so that their communication partner can act as their word prediction when writing or telling you something.

Video 3: https://youtu.be/g3v7h5n-flY?si=Lx7GllfE1CpwlRER
Student using her recorded yes/no responses to choose letters to sign her name.

MATH:

15. Using yes/no buttons to choose numbers on the alternative number pencil.
16. With the recorded yes/no or "that's the one" the student

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can pick a number for the correct answer to a problem or to complete a sequence.

17. Interviewing to conduct research on a topic and graphing results, ("I'm doing research can you help me?...Did you go to the beach or mountains or do something different this summer?...Thanks for your time").
18. Use yes/no or that's the one to pick the number of body parts to put on a drawing (eyes, arms, legs) (Image 3).

Image 3: Image of a young man picking the number of eyes he wants on his picture

SELF-ADVOCACY:

19. Giving caregivers or peers directions (I like to call these Bossy Buttons) Bossy Button video.
20. Calling for help, ("Hey, I need you,""I need some help over here.")
21. Use Yes/no to make choices about what to wear, watch, listen to, etc…)

ART , SPECIALISTS AND LEISURE:

22. Choosing colors when painting, drawing or coloring.
23. Commanding smart speakers at home, (Alexa, play my music).
24. Giving commands to voice activated robots (Video 4).
25. Playing hide and seek (Counting on one level) and then "I see you" on another).
26. Playing parts of a favorite song.
27. Playing musical instruments (Video 5).

GROUP TIME OR CLASSROOM CHORES:

28. Report the weather or other calendar activities to the class.
29. Start the Pledge of Allegiance.
30. Announcing what is for lunch to the class.
31. Notify class of transitions, ("It's group time.")

Video 4: https://youtu.be/_zVfwxi4BOA
Video of AAC system directing voice activated robots.

Video 5: https://youtu.be/voFw-S984hA
Band concert student is playing percussion with head switches and Little Mac Switches.

32. Direct peers to line up, pack up, and other classroom routines.

Another great tool to use daily in the classroom is the All-Turn Spinner. You can either create custom backgrounds to go on the spinner, or use something as simple as a sticky note to adapt the spinner on the fly. It can be used for reading, writing, math, games, or assigning tasks - the options are endless. (Image 4, next page).

USING AN ALL-TURN-SPINNER THROUGHOUT THE DAY

READING:

33. Place several book options on the spinner and let the spinner pick the book to read.
34. Alphabet or Phonemic Awareness (Work on the letter or sound that the spinner lands on).

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Image 4: A student using a spinner background to choose which items to put in her air foam

WRITING:

35. Independent writing (Phrases related to the topic and write what the spinner lands on to create silly spinner writing).
36. Pick a writing topic out of several choices.
37. Pick a character or setting to write about.
38. Write about how the characters are feeling.

MATH:

39. Math facts (One or two spinners - spin the spinner and see if it gets the right answer to the problem. If using 2 spinners one can be used to choose the math problem and the second to answer. This is great because the student is never wrong, they get to tell the spinner that it is wrong!)
40. What number comes next-see if the spinner gets it right. Use voice output switches to have the student say, "that's the one."

ART, SPECIALISTS, AND LEISURE:

41. Pick paint, marker, crayon colors.
42. Pick items to put into (slime, sandbox, water play, play dough).
43. Select a song to listen to.
44. Pick a game board or card game to play.
45. Board games (Candyland, Shoots and Ladders, Monopoly, etc..) can be adapted with hand made spinner backgrounds.
46. Select ingredients for a smoothie or a milkshake.

GROUP TIME OR CLASSROOM CHORES:

47. Assign classroom jobs based on student names where the spinner lands.
48. Use the spinner to pick who goes first.

The PowerLink 4 and iClick allow students to access and operate real world appliances in real world situations (such as cooking, turning on and off a mixer, etc…). With either of these tools, a plug and any electrical appliance/toy with an on/off switch becomes accessible using a switch. Using either of these tools is easy. Here is a YouTube video demonstrating how to use the PowerLink 4. Spice up shared reading by creating a two-switch, two-function activity using a voice output switch and a PowerLink 4. In this video, the student is engaged in shared reading about the wind and sun. When reading about the wind, he can comment on how windy it is and how hard the wind is blowing. When the wind is the topic of the page, he uses a second switch to activate the "wind guy" to simulate the wind and help make a connection to the text. (Video 6)

Video 6: https://www.youtube.com/watch?v=FPFL1hOEvpM
Video of reading the contest between the wind and the sun.

USING A POWERLINK4 THROUGHOUT THE DAY

READING:

49. Using inflatable yard decorations during shared reading.
50. Making a fan blow to simulate the wind in a story or put orange and red streamers on the fan to simulate a fire for a camping story.

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MATH AND SCIENCE:

51. Predicting, Counting and Measuring using a fan and blow dryer
    - Making Science Accessible-Part 1
    - Making Science Accessible-Part 2
    - Making Science Accessible-Part 3
52. Learning colors-Glitter Lava Lamp.

ART:

53. Adapt a fan for big spin art (Image 5).
54. Blow drier to move paint or blow something across the paint when doing acrylic pours.
55. Blow dryer to melt crayons to make encaustic paintings.

Image 5: Student painting with adapted fan and switch adapted pouring tool

SENSORY:

56. Waving Banners.
57. Lava Lamp.
58. Animated Light Projector.
59. Sprinkle a Little Razzle Dazzle.
60. Game Day Celebrations with twinkle lights.

COOKING

61. Food Processor.
62. Blender.
63. Stand Mixer.
64. Hand Mixer.
65. Pop Corn Maker.
66. Ice Cream Maker.
67. Salad Shooter.
68. Electric knife.

SPORTS/RECREATION

69. Tabletop Bowling with a blow dryer.
70. Leaf Blower Bowling - How to Video.
71. Leaf Blower Croquet.
72. Leaf Blower basketball.
73. Leaf blower volleyball (Image 6: Student using an Ultimate Switch to activate a leaf blower to set up a volleyball for his peers to serve.)
74. Leaf Blower-Yard/Deck Cleaning.
75. Leaf Blower Kick Ball.
76. Leaf Blower Scarf Chase.
77. Leaf Blower to Play Fetch with dog.
78. Inflatable Yard Decorations.
79. Using a waterpik as a squirting device in water fights.
80. Use a fan or blow dryer to blow out candles that relight.
81. Waterpik to water plants.
82. Drill to help with home projects.
83. Sewing machine - work together to sew.
84. Partner vacuuming.

Image 6:

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USING SWITCH ADAPTED POURING TOOLS THROUGHOUT THE DAY

Switch Adapted Pourers are another great resource to add fun opportunities in many academic areas. You can also make your own that is cost effective to get started (How to make your own switch activated pouring tool). (Image 7)

Image 7: Image of student activating a switch to pour paint on a canvas

MATH AND SCIENCE

85. Mixing items to see the reaction.
86. States of matter (add water to ice).
87. Making colors to dye eggs or color water for tie dying.
88. Adding water to make water beads/fake snow.
89. Pouring into a funnel to fill containers (salt/pepper, spices, etc…)

ART, SPECIALISTS, AND LEISURE

90. Creating Acrylic Pour art.
91. Pouring paint onto spin arts.
92. Pouring sand when playing with peers in a play/sensory table.
93. Pour dirt and seeds into a pot to plant seeds.

GROUP TIME OR CLASSROOM CHORES

94. Water plants.
95. Pouring juice/milk/water to drink.
96. Measure and pour snack portions into bowls.
97. Pouring popcorn into the popcorn popper.

COOKING

98. Adding ingredients when cooking/baking.
99. Making sand/colored rice art in a mason jar.
100. Water the dog/cat/classroom pet.

Having these four tools in your classroom, allows you to create hundreds of opportunities for your students to interact with peers, engage in academic instruction, show you what they know, and engage in self-directed play and leisure activities. Schedule these into your day, and you will have your students getting 100's of switch hits a day resulting in increased muscle control, endurance, empowerment, and fun!

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product spotlight

‘Great’ just got better. The NEW ProSlate 10D

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