Assistive Technology Resources for Children and Adults with Disabilities



Volume 44 - Number 1



www.closingthegap.com

STAFF

Megan Turek PRESIDENT

Marc HagenVICE PRESIDENT MANAGING EDITOR

Becky Hagen MEMBERSHIP MANAGER REGISTRATION MANAGER

Callie Kriechbaum SALES MANAGER

INDIVIDUAL SOLUTIONS MEMBERSHIP

Membership Rates 1-yr. \$449; 2-yr. \$748; Parent \$275 GROUP SOLUTIONS MEMBERSHIP Group options available.

SUPPLEMENTAL COLLEGE CURRICULUM – ELECTRONIC TEXTBOOK Instructors receive a complimentary one-year membership.

Student Membership 1-yr. \$125 Standard

Visit

www.closingthegap.com/membership for complete details and pricing.

PUBLICATION INFORMATION

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

CONTACT INFORMATION

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

COPYRIGHT

Entire content is copyright 2025 by Closing The Gap, Inc., all rights reserved. Reproduction in whole or in part without written permission is strictly prohibited.

EDITOR'S NOTE

The information provided by Closing The Gap, Inc. in no way serves as an endorsement or guarantee by Closing The Gap, Inc.



@ATClosingTheGap

www.facebook.com/ ATClosingTheGap

Ø

www.instagram.com/ atclosingthegap

contents

volume 44 | number 1

- 3 The Impact of CATT on K-12 Education for Students Who Are Blind or Low Vision By Ramona McLaughlin and Niraj Parikh
- 8 Navigating the AAC Roadmap: From Consideration to Implementation By Holly Love
- Harnessing Collective
 Efficacy: Strategies for
 Augmentative Alternative
 Communication
 Implementation
 By Beth Zillinger and Paige
 Buckingham



April / May, 2024

20 Harnessing Assistive Technology Education: Innovative Approaches for Preparing Occupational Therapy Students By Lauren Andelin and Isaiah Wills



31 I Graduated, Now What? Meaningful Opportunities for Community, Social Interaction, and Mentorship for AAC Communicators By Sidney Daswick, Kim Daswick and Mary Anne Barno

The Impact of CATT on K-12 Education for Students Who Are Blind or Low Vision

Summary: The Center for Assistive Technology Training (CATT), a key initiative of the American Printing House for the Blind (APH), is instrumental in enhancing K-12 education for students who are blind or have low vision. This article examines the distinctive challenges these students encounter and highlights the ways in which CATT addresses these obstacles through its robust training programs and resources. In order for some students with disabilities to participate fully in the curriculum, they need to utilize AT. In order for them to use AT effectively, they need teachers skilled and confident to train them to use it.



CHALLENGES FACED BY K-12 STUDENTS AND TEACHERS

Since its inception in 1879, the Act to Promote the Education of the Blind has allocated annual funding to the American Printing House for the Blind (APH) to produce and distribute educational materials tailored specifically for students identified having a visual impairment. In addition to these materials, APH supplies various teaching aids, such as assessments, performance measures, and other specialized resources (American Printing House for the Blind, n.d). The organization also conducts research focused on the development and improvement of these products, while offering outreach services to both professional and consumer organizations.



RAMONA MCLAUGHLIN is a dedicated educator with 15 years of experience supporting students with visual impairments in a Southern California K-12 school district. In addition to her work in the classroom, she serves as a faculty member at California State University, Los Angeles, where she coordinates early fieldwork for the Visual Impairment Credential Program and teaches courses in literacy, technology, and research. Her research focuses on improving technology access for students with visual impairments.



NIRAJ PARIKH, With over 22 years of experience in AT, working with individuals with various disabilities from K-12, college, and adults, Niraj Parikh, CATT Program Coordinator, holds a Master's in Assistive Technology and Human Services. Starting as an AT Specialist, Niraj founded Kratu, Inc. and now leads CATT, empowering educators and parents of visually impaired children through a "train the trainer" approach.



LIMITED ACCESS TO RESOURCES:

Funding continues to play a crucial role in shaping the accessibility of both low-tech and high-tech assistive technology (AT) for students with visual impairments (Senjam et al, 2023). While there are various funding sources that practitioners can explore, the process of securing AT begins with the responsibility of the IEP team. This team must assess a student's needs, determine the appropriate AT, and design suitable training and support before acquisition. Without thorough assessment and planning, however, barriers can arise that hinder effective AT use. Inadequate planning often leads to mismatched devices, which can result in abandonment or underutilization (Fteiha et al, 2024).

A key challenge faced by students with visual impairments (SWVIs) is the limited availability of traditional textbooks and learning materials in accessible formats, such as Braille or audio (Kana & Hagos, 2024). Even when these materials are available, delays in their acquisition and distribution can further disadvantage students, hindering their ability to access educational content in a timely manner. This lack of accessible learning materials, paired with a deficiency in curriculum adaptations, creates significant barriers to academic success for SWVIs. These students require specialized instructional strategies and accommodations to thrive. For instance, integrating tactile and auditory elements into lesson plans can help supplement traditional visual-based instruction, fostering a more multisensory learning experience.

When given adequate accommodations, SWVIs can excel in complex subjects like science, mathematics, and other STEM disciplines, which traditionally rely on visual representation (NSTA, n.d). However, the abstract nature of many scientific and mathematical concepts presents additional challenges for these students. To overcome these obstacles, educators can implement strategies that enhance contextual understanding, encourage collaborative learning, and promote targeted questioning, all of which can support deeper comprehension.

Conventional academic curriculum remains largely tailored to sighted students, putting those with visual impairments at a disadvantage, particularly in hands-on experiments and tasks that heavily rely on visual aids. By considering sensory needs when designing academic tasks, educators can create a more inclusive learning environment for SWVIs. Additionally, alternative formats, including accessible materials provided by organizations such as the American Printing House for the Blind (APH), offer valuable resources to enhance accessibility in subjects like science and mathematics.

LACK OF TRAINED EDUCATORS:

Professional development in assistive technology (AT) plays a pivotal role in enhancing educators' self-efficacy in its application. This is especially critical considering that many teachers entering the profession have not received adequate

AT training during their college education (Alsolami, 2022). The Individuals with Disabilities Education Act (IDEA, 1997) mandates that the majority of the 5.8 million students with disabilities (SWD) be integrated into general education classrooms to the greatest extent possible, to engage in core subjects such as science and math (U.S. Department of Education, 1991, Kalonde, 2019). Despite this policy, many educators report feeling illprepared to support students with visual impairments, lacking both specialized teaching strategies and the knowledge required for the effective use of AT. This deficiency limits their ability to create inclusive learning environments, particularly for students with visual impairments.

A survey of 1,088 science teachers found that 54% felt the least prepared to teach students with visual impairments compared to other disability groups (Kahn & Lewis, 2014). Similarly, Teachers of Students with Visual Impairments (TSVIs) report feeling unprepared to teach STEM content, further complicating the situation (Smith, 2017). This creates a significant disconnect: STEM educators often lack the pedagogical skills to teach students with visual impairments and integrate specialized AT into their lessons, while TSVIs may lack the content knowledge necessary to support both the student and the STEM educator effectively. Moreover, TSVIs report insufficient familiarity with AT devices (Tuttle & Carter, 2022) that may lead to a lack of confidence in teaching students to use them.

According to the National Longitudinal Transition Study 2 (NLTS2), only 42% of academically focused high school students with visual impairments were using high-tech assistive technology on average (Kelly, 2011). Further research by Kelly (2009, 2011) indicates that fewer than half of K-12 students with visual impairments had access to assistive technology that could help them fully participate in STEM education. There is a strong correlation between students' use of assistive technology and teachers' familiarity with these tools. When educators are confident in their ability to use AT, they are more likely to integrate it into their teaching practices, which increases the likelihood of successful implementation (Fernández-Batanero,2022). One potential way to enhance teachers' use of assistive technology and, in turn, improve its use by SWVIs is by increasing teachers' familiarity with a wider range of AT devices (Bin & Berry, 2018).

INADEQUATE CURRICULUM ADAPTATION:

Students with visual impairments require specialized instructional strategies and environmental accommodations to facilitate learning. Incorporating tactual and auditory elements into the educational experience significantly enhances visualbased instruction, providing a multisensory approach to learning. Research shows that students with visual impairments can grasp higher-order concepts in disciplines such as chemistry, physics, engineering, biology, and mathematics fields traditionally reliant on visual representations—when appropriate accommodations are implemented (Sahin &



www.closingthegap.com/membership | April / May, 2025 **Closing The Gab** © 2025 Closing The Gap, Inc. All rights reserved. Yorek, 2009). However, the abstract nature of scientific and mathematical concepts presents particular challenges for these students. To address these challenges, teachers can implement strategies that enhance context and foster collaborative learning, complemented by targeted questioning techniques.

By considering the sensory components of academic tasks, educators can create a more holistic and accessible learning experience. Alternative formats for all subjects, including science and mathematics, are available through resources such as the American Printing House for the Blind (APH), which provides accessible visual materials. Despite these resources, the typical academic curriculum is often designed with sighted students in mind, which can place students with visual impairments at a disadvantage. This is especially true for subjects like science and mathematics, where hands-on experiments and visual aids are frequently integral to instruction.

SOCIAL ISOLATION:

Among the many challenges faced by children and adolescents with visual impairments, difficulties in social skills are more frequently reported than among their sighted peers (Caron et al., 2023). These students are particularly vulnerable to social isolation in school environments, where their inability to participate in visually oriented activities limits their ability to interact with peers and hampers their social development. This exclusion is often a result of insufficient adaptations to classroom activities, which prevents their full participation.

Assistive technology (AT) plays a crucial role in addressing these challenges by providing significant benefits to students with visual impairments. For example, AT enables students to engage in independent academic tasks or collaborate with classmates, rather than waiting for assistance. Research has shown that students with visual impairments tend to learn more effectively when they are given opportunities to work alongside sighted peers as active members of a group (Sahin & Yorek, 2009). This collaborative environment fosters social connections and helps these students become more engaged in class activities and increase independence (Alimović, 2024).

Practitioners working with SWVIs emphasize the importance of promoting independence and increasing participation in group work. CATT support and resources exemplifies this effort and empowers learners with the tools they need to access a wide range of learning experiences. The assistance and guidance CATT provides to TSVIs can enable the learning environments students need to plan their own academic investigations, make decisions, and share their discoveries with peers, enhancing both their academic and social engagement (Tuttle, 2022).

THE ROLE OF CATT IN ADDRESSING THESE CHALLENGES

In addressing these challenges, CATT plays a pivotal role in supporting TSVIs, who are primary responsible for assistive

technology training for SWVIs (Tuttle & Carter, (2022). CATT training helps ensure TSVIs stay well-informed and have knowledge about relevant AT designed for SWVIs. CATT specialists provide comprehensive assistance across multiple stages, including training, assessment, evaluation, planning, device setup, and technical support. Through this extensive support, CATT ensures that SWVIs have access to a more equitable and accessible education, helping to bridge the gap between them and their sighted peers.

TRAINING FOR EDUCATORS:

Since its establishment in 1879, the Act to Promote the Education of the Blind has provided annual funding to the American Printing House for the Blind (APH) to produce and distribute educational materials tailored specifically for students who are legally blind. In addition to this, APH offers an array of teaching aids, such as tests, performance measures, and other specialized supplies. The organization also conducts research focused on the development and enhancement of products and provides outreach services to both professional and consumer organizations.

Effective teacher professional development is crucial, with a clear need for programs that combine hands-on training with ongoing, timely support. The Center for Assistive Technology Training addresses this need through its Training of Trainers (ToT) model, an active and participatory teaching strategy that involves users in both teaching and learning processes. This approach empowers educators by equipping them with the knowledge and skills necessary to train their colleagues and students (Survey et al., 2020). The ToT model represents a shift away from reliance on external experts towards fostering a more sustainable, internally supported professional learning community. Its primary objective is to bridge the gap between teachers' self-perceptions of their abilities and their actual competencies. In this way, the model provides a relevant and impactful response to the ongoing needs of educational agencies, TSVIs, and other practitioners working with students with blindness or low vision.

ASSISTIVE TECHNOLOGY:

Historically, traditional assistive devices have encompassed both high-tech and low-tech tools specifically designed to support individuals with disabilities in accessing their educational environments. These devices enable individuals to actively engage in academic activities and daily tasks, such as organizing schedules, cooking, and traveling safely. However, one significant barrier to access is inadequate funding for both high- and low-tech assistive technologies. The Center for Assistive Technology and Training addresses this challenge by offering a valuable loaner device program, which allows educators to engage in hands-on learning and begin student training while funding is being sought to secure a personal device. During this



period, teachers can also benefit from the technical assistance provided by CATT's network of professionals, all dedicated to enhancing educational opportunities for students with visual impairments.

COLLABORATION AND SUPPORT:

The Center for Assistive Technology collaborates with various organizations to provide support and resources to educators and families. This includes technical assistance, loaner devices, and access to a network of professionals dedicated to improving education for visually impaired students. The collaborative efforts of CATT ensure that educators and families have the necessary tools and knowledge to support visually impaired students effectively. This collaborative approach is supported by research that highlights the value of transdisciplinary collaboration in the field of assistive technology, fostering innovation and impactful solutions (Boger Et al, 2017).

In the few years that CATT has existed, it has provided invaluable support to professionals in the field. However, the success of this APH program would not have been possible without the collaboration and support of organizations such as the Alabama Institute for Deaf and Blind (AIDB), the Foundation for Blind Children (FBC) in Arizona, and the Washington State School for the Blind (WSSB). Additionally, CATT collaborates with school districts, state schools for the blind and deaf, assistive technology conferences at both state and national levels, the Association for Education and Rehabilitation of the Blind and Visually Impaired (AER), and other similar organizations. These collaborations ensure that students with blindness and low vision receive the support they need to succeed. By working together, advocating, and providing services, we can create a more inclusive and supportive educational environment for these students.

CONCLUSION

The Center for Assistive Technology Training is a pioneering initiative that encompasses three distinct programs, each led by dedicated professionals. The Southeast Program, under the leadership of Stephanie Pizza, serves states including Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee. The Northwest Program, led by Yue-Ting Siu, extends its services to Alaska, American Samoa, California, Guam, Hawaii, Idaho, Montana, Northern Mariana Islands, Oregon, Washington, and Wyoming. Additionally, the Southwest Program, spearheaded by Niraj Parikh, focuses on providing assistive technology support, outreach, and training across Arizona, Texas, Nevada, Utah, Colorado, New Mexico, and other states not covered by the other programs. For more information, please send an email to: CATT@aidb.org for the Southeast Program, cattnw@wssb.wa.gov for the Northwest Program, and info@CATTSouthwest.org for the Southwest Program.

SUMMARY

The Center for Assistive Technology Training is making a significant impact on K-12 education for students who are blind or have low vision. By addressing the challenges these students face and providing comprehensive training and resources, CATT is helping to create a more inclusive and supportive learning environment. As an APH program, CATT's collaborative approach and commitment to high-quality education on assistive technology are bridging the gap and ensuring that visually impaired students receive the support they need to succeed.

REFERENCES

- Alimović, S. (2024). Benefits and challenges of using assistive technology in the education and rehabilitation of Individuals with visual impairments. *Disability and Rehabilitation: Assistive Technology*, *19*(8), 3063–3070. https://doi.org/10.1080/17483107.2024.2344802
- Alsolami, A. S. (2022). Teachers of Special Education and Assistive Technology: Teachers' Perceptions of Knowledge, Competencies and Professional Development. *Sage Open*, *12*(1). https://doi.org/10.1177/21582440221079900
- American Printing House for the Blind, (n.d). American Printing House Catalogs. Retrieved February, 2025 from https://www.aph.org/aph-catalogs/.
- Atanga, C., Jones, B. A., Krueger, L. E., & Lu, S. (2020). Teachers of Students With Learning Disabilities: Assistive Technology Knowledge, Perceptions, Interests, and Barriers. *Journal of Special Education Technology*, 35(4), 236-248. https://doi.org/10.1177/0162643419864858
- Bin Tuwaym, S. T., & Berry, A. B. (2018). Assistive Technology for Students With Visual Impairments: A Resource for Teachers, Parents, and Students. Rural Special Education Quarterly, 37(4), 219-227. https://doi.org/10.1177/8756870518773397
- Boger, J., Jackson, P., Mulvenna, M., Sixsmith, J., Sixsmith, A., Mihailidis, A., Kontos, P., Miller Polgar, J., Grigorovich, A., & Martin, S. (2017). Principles for fostering the transdisciplinary development of assistive technologies. *Disability and rehabilitation. Assistive technology*, *12*(5), 480–490. https://doi.org/10.3109/17483107.2016.1151953



- Caron, V., Barras, A., van Nispen, R. M. A., & Ruffieux, N. (2023). Teaching Social Skills to Children and Adolescents With Visual Impairments: A Systematic Review. *Journal of Visual Impairment & Blindness, 117*(2), 128-147. h t t p s : //doi-org.csula.idm.oclc. org/10.1177/0145482X231167150
- Connor, C., Snell, M., Gansneder, B., & Dexter, S. (2010). Special education teachers' use of assistive technology with students who have severe disabilities. Journal of Technology and Teacher Education, 18, 369–386
- Fernández-Batanero, J. M., Montenegro-Rueda, M., Fernández-Cerero, J., & García-Martínez, I. (2022). Assistive Technology for the Inclusion of Students with Disabilities: A Systematic Review. *Educational Technology Research and Development*, *70*(5), 1911–1930. https://doi-org.csula.idm.oclc.org/10.1007/s11423-022-10127-7
- Fteiha, M., Al-Rashaida, M., Elsori, D., Khalil, A., & Al Bustami, G. (2024). Obstacles for using assistive technology in centres of special needs in the UAE. *Disability and Rehabilitation: Assistive Technology*, *19*(8), 2934–2944. https://doi.org/10.1080/17483107.2024.2323698.
- Gronseth, S., Brush, T., Ottenbreit-Leftwich, A., Strycker, J., Abaci, S., Easterling, W, & Leusen, P. V. (2010). Equipping the next generation of teachers: Technology preparation and practice. Journal of Digital Learning in Teacher Education, 27, 30-36. doi:10.1080/21532974.2010.10784654
- Kalonde., G. (2019). Inclusive Education in Science Education. In the Handbook of research on innovative digital practices to engage learners: (pp 261-273). Edited by P. H. Bull, Information Science Reference.
- Kana, F. Y., & Hagos, A. T. (2024). Factors hindering the use of Braille for instruction and assessment of students with visual impairments: A systematic review. British Journal of Visual Impairment, 0(0). https://doi.org/10.1177/02646196241239173
- Servey, J., Bunin, J., McFate, T., McMains, K. C., Rodriguez, R., & Hartzell, J. (2020). The Ripple Effect: A Train-the-Trainer Model to Exponentially Increase Organizational Faculty Development. MedEdPublish, 9. https://doi.org/10.15694/mep.2020.000158.1
- Senjam SS, Manna S, Kishore J, Kumar A, Kumar R, Vashist P, Titiyal JS, Jena PK, Christian DS, Singh US, Kamath R. Assistive technology usage, unmet needs and barriers to access: a



April / May, 2025 | www.closingthegap.com/membership **Closing The Gap** © 2025 Closing The Gap, Inc. All rights reserved.

sub-population-based study in India. Lancet Reg Health Southeast Asia.

(2023). doi: 10.1016/j.lansea.2023.100213. PMID: 37614348; PMCID: PMC10442958. The Act to Promote the Education of the Blind" 20 U.S.C. 101 et seq.

- Tuttle, M., & Carter, E. W. (2022). Examining High-Tech Assistive Technology Use of Students With Visual Impairments. Journal of Visual Impairment & Blindness, 116(4), 473-484. h t t p s : / / d o i - o r g . c s u l a . i d m . o c l c . org/10.1177/0145482X221120265
- Wild, T., Lu, X., Kelly, S. M., Smith, D. W., & Fast, D. (2022). Creation of a National Agenda for STEM Education for Students With Visual Impairments. Journal of Visual Impairment & Blindness, 116(5), 749–751.

h t t p s : / / d o i o r g . c s u l a . i d m . o c l c . org/10.1177/0145482X221134372. ■

Navigating the AAC Roadmap: From Consideration to Implementation

Summary: This article takes you on a journey through the AAC Roadmap, an organized and comprehensive process for considering augmentative and alternative communication (AAC) to support the communication needs of students. This website, developed by the Virginia Department of Education's Assistive Technology Network, contains free resources meant to empower school based teams to identify, assess, and teach students to use AAC systems using evidence-based practices. We will also bust some popular myths around AAC along the way!

I have worked with many educational teams over the years that have considered augmentative and alternative communication (AAC) to address a student's communication needs. During this journey, I have encountered a number of roadblocks that are rooted in common myths surrounding AAC. Many times these misconceptions have delayed or even prevented a student from gaining access to a communication system. So, how do we prevent this and make sure that we are supporting the communication needs of our students? Well, I certainly don't have all the answers, but dispelling these myths is a great place to start. In most cases, teams have the best intentions but it turns out Socrates was right, "You don't know what you don't know."

I attended a session at a conference a few years ago where the presenter said that when we make AAC recommendations we are simply "making a guess" on what tool is best. This statement stuck with me. I began reflecting on my own practices, talking with fellow SLPs, and researching how teams were conducting AAC assessments and making decisions about what supports to implement. I discovered that most teams were piecing together a process from various sources and that they lacked a certain level of confidence in their findings. Naturally, the next questions were, "wouldn't it be nice if there was an organized and comprehensive process all in one location with resources and research to back it up? And wouldn't it be even nicer if this process was free and available to anyone"?

That is exactly what my colleagues and I, from the Virginia Assistive Technology Network, asked ourselves and why we spent the better part of two years creating what we call the AAC Roadmap. This site, put together by a network of SLPs and assistive technology stakeholders across Virginia, is located on the Virginia Department of Education's Assistive Technology Network website at https://atnetwork.ttaconline.org/. When you click on the AAC Tab (at the top right) you will find information from consideration all the way through implementation. This process is based on the S.E.T.T. Framework developed by Joy Zabala. S.E.T.T. is an acronym that stands for Student, Environment, Task and Tool. In this model, we look at the student first and gather information on strengths and interests, the various environments they spend time in, and the tasks that they need to be able to participate in throughout their day. It is only after we have gathered all of this information that we begin looking at the tool or tools that match the individual needs, with the goal being more than just a guessing game.



HOLLY LOVE, CCC-SLP, ATP. Holly is a graduate of Radford University where she obtained her Bachelor's degree in communication sciences and disorders and her Master of Science degree in speech pathology. She is an ASHA certified Speech Language Pathologist with a background in school based therapy. She has over 20 years experience serving students from early intervention through high school. She is also a RESNA certified assistive technology professional.

Holly joined the Technical and Training Assistance Center (T/TAC) at Virginia Tech in 2011 as a Coordinator of Communication. In her current role, she provides technical assistance to 33 school divisions (132 schools) in southwest VA. She is dedicated to providing educational teams and families with information and assistance to support the success of children with disabilities. Her areas of specialization are autism, literacy, communication, and integration of assistive technology.

www.closingthegap.com/membership | April / May, 2025 **Closing The Gap** © 2025 Closing The Gap, Inc. All rights reserved.



But what about those misconceptions that can hinder progress? We also set out to dispel these myths.

One of the first roadblocks that we tend to encounter is the myth that AAC is only for nonverbal students. While AAC can be extremely beneficial for our non speaking students, it can also be very effective for supplementing the speech of those with limited verbalizations. Sometimes students can get stuck on a particular word or a scripted phrase. AAC can help these students by giving them access to more words and helping to expand their language. We know that individuals need access to hundreds of words in order to have novel communication and AAC can help bridge this gap. It can also be beneficial for students who have difficulty being understood due to articulation delays, a phonological impairment, or motor planning issues like apraxia of speech. AAC can aid in times of communication breakdowns and serve as an appropriate model of the correct production. In both of these instances, the AAC device is used as a teaching tool to increase the student's language skills.

Many parents have a fear that the use of an AAC device will prevent their child from speaking. But, the myth that AAC hinders or stops students from developing verbal communication has been completely busted! In fact, research tells us that the incorporation of AAC in most cases actually increases verbal speech. Providing the user with increased vocabulary helps them during conversations to say longer messages. The use of AAC can also lessen the load of cognitive and/or motor demands allowing the user to free up energy for increased participation. In addition, the immediate auditory feedback that the user receives is instrumental in providing appropriate language modeling, thus having positive effects on overall language development.

The myth that seems to be the most popular, and the one that gets under my skin the most, is the misconception that there are certain prerequisite skills necessary to use AAC. Let me stand up in my chair and grab a megaphone when I say, "There are no prerequisites for using AAC!" In fact, communication is a basic human right. Too often, a student is asked to "prove" that they have the ability to use a communication system. I have actually read the statement "they aren't ready" in a number of reports. The truth is that anyone can benefit from AAC no matter their age, motor skills, or cognitive ability. In fact, we can use AAC to teach beginning skills, and there are many access options available. This is why it is so important that AAC assessment and consideration be a collaborative and individualized process.

Once we gather information and have an understanding of the student, we can begin to trial the various tools. This brings us to the next roadblock which is the myth that AAC is one-size-fitsall. I once had a team tell me the student was using a particular app because the SLP already had it downloaded on her iPad. In another situation, a student was using a device because that was the system their division had adopted for all students. And, if you can believe it, I even had an SLP tell me that a student was using an older model high tech device (that isn't even manufactured anymore) because she had found it at a yard sale! Now, I cannot fault any of these teams because at least they were trying, right? But, too often we are retrofitting systems for students because it is what is convenient or what we feel comfortable with rather than looking at each user's needs individually. The truth is that AAC systems are different in terms of the level of sophistication, the symbol system used, and the amount and organization of vocabulary. There is no one tool that is appropriate for all!

When first introducing AAC, there is a dated misconception that you have to start with low tech tools. Some students can benefit from high tech from the start depending on their particular needs and preferences. During the information gathering stage, the team determines the student's current language skills. We should then match the AAC system at or slightly above this level. There is no evidence to support the myth that students have to work their way up a hierarchy of supports. In fact, this oftentimes makes the process harder for the user because we are constantly teaching them how to use a new language system. If a student understands hundreds of words then they need access to hundreds of words. I can't tell you how many times a team has said to me, "we tried AAC but the student wasn't interested in using it". In most of these instances, it was not being used because the student didn't find the available words useful. Imagine being nonverbal but understanding everything that is being said to you then given an AAC system that has a very limited amount of vocabulary. What is the chance that a situation would arise where you would be motivated to use one of the few words that you have available? On the flip side, imagine being given a device that has hundreds of words at hand but you have a limited vocabulary. This might be very overwhelming and cause you to shut down. In both of these situations, we may see the user avoid using the device which may seem like they are not interested. Remember that we can't always predict what others will say. Giving students access to words gives them the ability to say what they want to say when they want to say it, which is the ultimate goal of any communication system.

Successful trial implementation is the result of a well developed plan that ensures all team members are on the same page and working together. A good plan includes clearly stated goals, well defined roles and responsibilities and an understanding of how you will collect data. That's right. I said it. Data is what drives our decision making and is an integral part of the process. Adopting a collection method that all team members understand and making sure the data is a reflection of the goal(s) is essential. Collecting data just to collect data does nothing to help our decision making. However, when we follow the plan, meet regularly, and analyze our data as we move through the process, we can say with certainty what tools worked and what tools didn't work. The team can then move forward with getting more long term support in place for a student with the data to back up its effectiveness.



So, we made it through the S.E.T.T. and identified the most optimal system. Now what? The myth that implementation of AAC is going to somehow "cure" communication deficits can be yet another roadblock for many teams. Many users will become fully independent in the use of their device over time. In fact, for those that have the capability to produce verbal speech, they may eventually drop the device all together. But for others, they may always need some level of partner assistance. I consider all three of these examples a success! The true measure in the successful implementation of an AAC system is an increase in the level of independence and improved communication for the user.

One of the most unfortunate misconceptions at this juncture is that this process is finished once we get a communication system in place. However, the existence of AAC doesn't mean the user will automatically start using it. It has to be taught! While this sounds like a daunting task, the good news is that there are evidence based practices (EBPs) that have been proven to be effective when teaching students to use AAC. These EBPs can be incorporated into everyday routines and activities. When we teach the use of AAC during these meaningful and naturally occurring opportunities throughout the day, we increase the likelihood that the student will see the system as a powerful tool.

There's no better way to introduce AAC than for wants and needs. The ability to make a request and have it appear is such a powerful thing! Just like the opportunity to make a preferred choice between two items gives a sense of control. We often start with these types of tasks because they are highly motivating and reinforcing. But the mistake we make far too often is letting ourselves get stuck here! If we buy into the myth that AAC is only for making requests or choices, we are greatly limiting the user's interactions. We know that communication is so much more! Our goal with any communication system is authentic communication, the ability to say what is on our mind. Therefore, a robust system should allow the user to communicate for a variety of reasons including requesting, protesting, describing, asking and answering questions, commenting, and expressing feelings. This is so important to remember in selecting what words to target when teaching the use of AAC. Multiple opportunities to use their system for various purposes throughout the day should be part of every implementation plan.

Another important part of the implementation plan that we tend to skip is teaching the adults who will be supporting the student! Don't assume that team members are comfortable and knowledgeable with AAC. For many, this might be their first interaction with a communication system. Lack of understanding from adults can sometimes hinder the success of the student. This notion can be overwhelming to teams because they think they are expected to be experts. But, the thought that everyone has to know everything about the system right off the bat is another misconception. Those working with the student should be familiar with device features, basic set up and programming and how to maintain the system. Many times, this training is provided by the manufacturer. I have also found manufacturer websites and YouTube pages very helpful. Making sure that team members feel comfortable enough to model on the device and ensure that it is accessible at all times is a great place to start. Adults will then learn the system alongside the user as it is implemented in real life situations.

Let's not forget that this whole process hinges on the fact that this is a collaborative approach! The idea that an AAC system is only used during speech therapy sessions is also a myth! An AAC device is a unique language system that has to be taught (as previously stated). Research tells us that the average AAC user receives between 16,000 - 24,000 models of words per week as opposed to their typical speaking peers that receive an average of 125,000 models of words per week. Therefore, it is essential to model and teach the use of the system as much as possible throughout the student's day in a variety of settings, during a variety of activities for many different purposes, and with a variety of communication partners. This generalization is an essential part of being a successful communicator.

While the process of selecting and teaching a student to use an AAC device might seem like a daunting task, it is essentially the same process as teaching any student how to understand and use language. This means we need to expose them to language the same way we do other children. We do this first of all by making sure that their AAC device is accessible at all times. Modeling is also key. Remember when you or someone you know had young children? From the time they are born, we talk to them. We name things, describe things, and talk about everything we do throughout the day. We do this for quite some time before they ever offer any verbal communication back. This is also the same process for our AAC users. We need to talk to them and model on their device, using their language, as much as possible. Be sure the things you are asking them to do with their system are meaningful! Especially when first starting out with AAC, focus on areas of interest and highly motivating messages. Most importantly, provide ample opportunities for students to practice their communication in everyday routines. AAC users need someone to talk to, something to talk about, and many opportunities for communicative exchanges throughout the day.

An AAC device can be life changing for a student with a communication impairment. As good communication partners, we need to be patient and understand that this process takes time. Be prepared to give a lot of receptive input before we get any expressive output. We should always presume competence in our AAC users and believe that each student is unique and has something to say. Don't buy into the common myths surrounding AAC! When students are properly identified, matched with optimal tools, and taught using best practices, AAC can increase social and emotional skills and enhance overall daily living. As part of a student's educational team, we need to be informed and empowered and trust the process!

www.closingthegap.com/membership | April / May, 2025 **Closing The Gap** © 2025 Closing The Gap, Inc. All rights reserved.



Harnessing Collective Efficacy:

Strategies for Augmentative Alternative Communication Implementation

Summary: This article explores the challenges of implementing Augmentative and Alternative Communication (AAC) systems in educational settings, highlighting challenges such as perceptions and knowledge of AAC. It emphasizes the importance of collective efficacy—a shared belief in the team's ability to improve student outcomes. By fostering collaboration, setting shared goals, and addressing resistance, teams can enhance AAC implementation. This article explores the four key sources for building collective efficacy: mastery experiences, vicarious experiences, social persuasion, and positive emotional states, ultimately improving AAC success for students.

INTRODUCTION

The implementation of Augmentative and Alternative Communication (AAC) is an effective strategy for supporting students who are unable to communicate through conventional means. Research has demonstrated that AAC can significantly enhance language development, social interactions, and academic performance. Nevertheless, many educational teams encounter persistent barriers to the provision and implementation of AAC systems. During the Closing the Gap 2024 presentation "Harnessing Collective Efficacy in AAC Implementation: Strategies for Success", we gathered feedback from participants regarding the primary obstacles they face in integrating AAC within their educational settings. The predominant challenges identified were the perceptions of AAC held by team members and time constraints related to services for use. These challenges directly impact caregiver and provider buy-in for implementation.



Image 1: Bubble chart representing the responses at CTG 24 to the question, "What are barriers you have experienced when it comes to bringing others on board with AAC?"



BETH ZILLINGER, MS, CCC-SLP, is the Kansas Infinitec Program Director. In this capacity, she supports students, families, and schools throughout the state of Kansas. Previously, Beth has served as K-12 speech-language pathologist, autism interdisciplinary and diagnostic team member, and assistive technology/augmentative alternative communication team coordinator in different Kansas special education cooperatives. Beth also serves birth to 18 students focusing on augmentative alternative communication through a private practice in rural Kansas. She is dedicated to advancing independence and promoting inclusive learning opportunities for all learners through technology



PAIGE BUCKINGHAM, MS, CCC-SLP, is the Assistive Technology Lead Facilitator for Kansas Infinitec. In this role, she works with AT teams across the state to build sustainable Assistive Technology services. She is a veteran educator having worked in public schools for 32 years as an SLP, and Special Education Facilitator focusing on AT/AAC. Paige is also the owner of Buckingham Educational Services & Training, LLC (BEST) and does educational consulting and presenting in the areas of AT/AAC, and Executive Function Skills.



"Speech Language Pathologists (SLPs) identified caregiver buy-in and carryover across providers as the most significant barriers to AAC implementation," (Lorang, Emily, et al.). During interviews with a variety of stakeholders, Yau. S.H., et al. found all stakeholders, including parents-carers, educators, and clinicians ranked a lack of AAC knowledge as a barrier. The interviews "also noted that 88% of parent-carers, 80% of educators, and all clinicians mentioned experiencing negative attitudes towards AAC use and uptake. Lastly, all stakeholder groups experienced communication partners withholding the device, due to a fear the device would 'break on their watch." These studies reinforce what many experience when implementing AAC systems and supporting multiple team members.

At Kansas Infinitec, our mission is to advance independence and promote inclusive opportunities for all learners through technology. We achieve this by partnering with Kansas school districts and our work with the Technical Assistance System Network (TASN) High Quality Instruction within Inclusive Learning Environments (HQIILE), a project of the Kansas State Department of Education (KSDE). Through our work with Kansas Infinitec and as Speech-Language Pathologists, we have discovered the importance of harnessing collective efficacy to build a shared vision for AAC implementation. This approach leads to powerful and exciting outcomes for students and their families.

AAC IMPLEMENTATION

The AmericanSpeech-Language-Hearing Association (ASHA) practice portal on AAC notes that "Beukelman and Light (2020) estimated approximately 5 million Americans and 97 million people in the world may benefit from AAC." However, according to the United States Society for Augmentative and Alternative Communication (USSAAC, n.d.), there are over 2 million children and adults in the United States who use Augmentative Alternative Communication (AAC). If there are approximately 5 million Americans who may benefit from AAC, but only 2 million are using it, why is AAC not being used, and specifically, when it is introduced why is it being abandoned or not used? Team members can often feel intimidated by the technology, or that they have a lack of knowledge about the use and integration of the AAC systems.

The following scenario is inspired by the authors' experiences but does not depict any specific school, team members, or student. Any names used are fictional and not intended to represent real individuals.

At Rock Elementary School, a dedicated school team is working with Jose who has been provided with an AAC system. The team includes paraeducators, teachers, therapists, and parents, all committed to supporting the student's communication needs. The Speech-Language Pathologist (SLP) introduces the AAC system and provides training, demonstrating how to model its use with the student. The SLP effectively uses the device during sessions, but some team members still feel unsure about how to integrate it into daily routines.

Maria is a team member who works closely with Jose, understanding his needs and wants without the device has become second nature. After the initial training, Maria begins incorporating the AAC device into activities. However, over time, she forgets to bring the device along to different settings or it goes uncharged, and Maria feels Jose doesn't appear to miss it. Gradually, the device is used less and less, often remaining on a shelf. When the SLP visits the classroom, she gets the device out, models its use with Jose, and encourages the team to continue using it. The SLP checks with Maria, since she is with Jose the most during the day, to see if she has any questions, but none are voiced because she is skeptical about whether the device is helping. After all, Jose has had it for three months and still doesn't seem to use it except with the SLP.

Renee is the SLP on the team. She completed an AAC evaluation with the team members who were participating and collecting data, at the IEP meeting the team reviewed this information and determined that Jose needed the device. During the evaluation, Jose engaged in activities in ways he had not done before, demonstrating exciting communication possibilities. Staff and family were trained in using the device with Jose, short videos were created for reference, and links to the company's "how-to" videos were shared. Data sheets were designed to track the student's use of the device throughout the day, and reminders were placed around the classroom. Everyone seemed to be on board.

However, a few weeks later, while walking by the library, Renee sees that Jose does not have his device. More time passes, and when Renee goes into the classroom for therapy, the device has to be retrieved from a shelf. The team is reminded of the importance of modeling and asked if there are any questions, but they say they have none. Renee wonders how she can get the team to see the importance of using the AAC system with Jose across his day. She has tried everything she can think of. She shares her concerns with her supervisor who talks to her about Collective Efficacy and how it could be used to build a sense of team and build trust and collaboration.

This scenario presents a common challenge in AAC implementation: initial excitement followed by a decline in usage. While this example focuses on a high-tech communication device, this same lack of use of a system can happen if the student is using low-tech, or mid-tech. When a new system is started with a student, or the student transitions to a new school or classroom, there can be unmet expectations. These expectations will be different depending on the role of the person on the team and can impact one's perception of the AAC system's effectiveness. For the SLP or person who has had a lead role in recommending a system, that expectation is that people will use the tool as they have been trained to do, they will ask questions if they are unsure of something, and they will



www.closingthegap.com/membership | April / May, 2025 **Closing The Gab** © 2025 Closing The Gap, Inc. All rights reserved. take data on the use of the system. For team members who may not have played a large role in the selection, or who may not be on board with the decision the expectation may be that the implementation of the system should go quickly, be easy to do, and not disrupt what is already happening, "solve" potential issues that the team has identified, and that the student will use it on their own. It is safe to say that somebody's expectations will not be met. When there are unmet expectations there is often frustration.

The goal of this article is to address the challenges of AAC implementation and ensure ongoing, consistent use. It is essential to consider strategies that foster a collaborative and shared commitment among team members. One powerful approach is collective efficacy. To generate collective teacher efficacy, teams must undertake three specific actions: (1) learning evidence-based practices to implement with students; (2) determining and attaining a shared goal; and (3) opening up practice through peer-to-peer observations. This article specifically focuses on determining and attaining a shared goal through four sources of collective efficacy. By strengthening collective efficacy, common barriers can be overcome, expectations aligned, and a supportive environment created where AAC is effectively integrated.

COLLECTIVE EFFICACY

There are over 320 different influences on student achievement identified in the Visible Learning research by John Hattie. Each influence is assigned an effect size based on a large-scale meta-analysis. Donohoo (2017) states, "An effect size emphasizes the difference in magnitude of given approaches for purposes of comparison. An effect size of 0 reveals that the influence had no effect on student achievement." Larger effect sizes have larger influences. Hattie identified an effect size of .2 as having a relatively small impact on student achievement, while .4 has a medium impact, and .6 a large impact. Visible Learning's Meta X platform notes that collective teacher efficacy has a weighted mean effect size of 1.01, deeming it an influence with the potential to considerably accelerate student achievement. The Visible Learning® Meta X platform provides a database of invaluable research around influences on student achievement and is an excellent resource to share with educators, administrators, and families.

IEP teams, related service providers, and educational professionals have long emphasized the importance of collaboration among team members. Effective collaboration encompasses cooperativeness, learning from errors, and seeking feedback to enhance team progress. The goal of developing collective efficacy is to elevate collaboration to create a shared vision and belief among all team members supporting AAC implementation. Hattie (2015) notes "The aim is not aspiring to utopia but scaling up the success already about us. It is expertise, it is reliable judgment, it is passion for making the difference,

and it is collaborative sharing of this knowing and doing and caring. This requires the greatest investment, and the benefits for the students will be manifest, powerful, and exciting."

Collective efficacy is the belief that a group possesses the competence to successfully improve student outcomes. It embodies the idea that collaboration leads to positive, lasting change. John Hattie describes collective efficacy as "the shared attitude among teachers that, by working together, they can make a difference for students." When participating on any educational team, it's essential to believe that everyone is working toward a shared goal. This belief fosters confidence that the group's collective efforts will result in meaningful progress and skill development for the student.

FOUR SOURCES OF COLLECTIVE EFFICACY

Bandura (1977), identified four sources of collective efficacy, mastery experiences, vicarious experiences, social or verbal persuasion, and physical and emotional states. Intentional investment in these four sources of collective efficacy can truly impact AAC Implementation and student success.

MASTERY EXPERIENCES

Mastery experiences have been identified as the strongest predictor of building collective efficacy (Donohoo, 2017). A mastery experience happens when you directly experience success. As a team, mastery experiences come from the opportunities where teams develop shared goals, engage collaboratively in learning activities, and experience success together. Educators often cultivate mastery experiences during Professional Learning Communities (PLCs) and IEP team or multidisciplinary team meetings. When challenging situations are encountered and success is found it reinforces one's ability to persist and attain goals. Doing this as part of a team will build momentum, increase confidence, and improve resilience for both providers and the students they support.

The key is for teams to experience success together and attribute the success to dynamics within their control. When working with a student using an AAC device, teams must have explicit discussions about expectations to achieve desired outcomes and sustain positive momentum. To guide these discussions and set expectations, teams can use a simple format for collaboratively developing look-fors (Derbiszewska and Tucker-Smith, 2020) outlining expectations for the student, staff, and communication partners to build a vision for what AAC implementation will look like across a specific activity.



What will the staff be doing?	What will the student be doing?				
What will be present in the environment?					
Image 2: Simple format for collaboratively developing look-					

Image 2: Simple format for collaboratively developing lookfors (Derbiszewska and Tucker-Smith, 2020)

Building on this approach, Image 3 illustrates the collaboration between an SLP and a student's mother in developing a shared goal for the child's favorite activity at home: playing in the toy kitchen. This table, adapted from the Comprehensive Autism Planning System (CAPS), was used to support AAC implementation at home. Following a session, the mother enthusiastically reported the successful interactions she and her daughter experienced. The SLP and the mother reviewed the modeling data collected within the communication system. Through clear communication and well-defined expectations, the mother experienced success and, together with her daughter, discovered the potential of AAC.

Effective teamwork and problem-solving skills are developed through support and guidance, rather than simply being assigned to a team. Intentional and purposeful structures that cultivate mastery experiences to support students who are using AAC are critical to helping the team build their own mastery experiences.

when team members observe others successfully overcoming similar challenges. Witnessing success builds confidence and reinforces the belief that success is attainable. To incorporate vicarious experiences, teams might videotape sessions to share techniques, host team meetings to discuss successes or model effective strategies. Teams can also initiate vicarious experiences by observing others in their district, special education cooperative, or agency working through a similar barrier to AAC implementation. If success hasn't yet been achieved, vicarious experiences can still be initiated by sharing small wins or progress made by others working with students who have similar needs.

"Vicarious experiences are situations that are witnessed by others; they aren't directly involved in the situation, but they see and feel it."

(Faddis, Fisher, Frey, 2023)



Image 4: Graphic of a quote from Faddis, et al along with picture of a student using AAC device to read a book.

VICARIOUS EXPERIENCES

Vicarious experiences, considered by Donohoo (2017), as the second most powerful source of collective efficacy occur

V. Bringing it all together Embed communication throughout the day Adapted from the Comprehensive Autism Planning System (CAPS) <u>Shawn A. Henry</u> (Author), <u>PhD Brenda Smith Myles</u> (Author)								
Time	Activity	Target <u>Communication</u> <u>functions</u> I can model	Targeted <u>vocabulary</u> I can model	Communication supports/system needed for this activity	Communication Partners	Communication partner expectations	Student Expectation for this activity	Data Collection
10:00 AM	Kitchen Center	Request Agree/Refuse Gain Attention Give info/ comment Express Opinion Seek Information	"want" "cup" "plate" food items	Touchchat Words for Life 42	SLP & Mom	Modeling Food items on food page Modeling "I want"	*explore food icons *visually attending to device	Number of icons & words modeled by partner

Image 3: Communication Support Matrix adapted from the Comprehensive Autism Planning System (CAPS) used to support AAC implementation



SOCIAL PERSUASION

Social Persuasion involves encouraging someone to adopt an idea, attitude, or course of action. It involves direct encouragement, reassurance, and verbal support from colleagues or experts. The more cohesive a team is the more likely they will trust others and consider sound arguments and examples to be persuaded. One of the most difficult times of AAC buy-in is during a transition. The sending school often will report how a student is doing with a system but the receiving team does not have the same experience or is reluctant to implement the system.

An example of social persuasion in AAC use during a student's transition from preschool to kindergarten could involve a preschool teacher and SLP sharing success stories and encouragement with the kindergarten team. A student has been using a high-tech AAC device in preschool, and the kindergarten team is hesitant about implementation, fearing it will disrupt their classroom routine. The preschool teacher and SLP meet with the kindergarten team to share concrete examples of how the device supported the student's communication, reduced frustration, and increased engagement. They provide reassurance, highlighting that they saw progress in the student using the system the more it was intentionally integrated into the classroom. This encouragement and validation from trusted colleagues boost the kindergarten team's confidence and willingness to fully support the student's AAC use.

Faddis et.al (2023) note that individuals who have strong persuasion skills embody qualities such as keeping promises, being reliable, taking responsibility, being sincere, genuine, and honest. Social persuasion helps influence and empower team members to believe they have the necessary skills and capabilities to succeed.

POSITIVE EMOTIONAL STATES

Positive Emotional States involve the affective conditions at the school and the emotional tone of the organization. This can reinforce educators' trust in one another and provide an environment that feels psychologically safe. When overcoming challenges in the perception of AAC devices, ensure that you have built excitement around the potential of the AAC system, and create system-wide support to enhance AAC implementation.

Peter Senge, author and founder of the Society for Organizational Learning, once said, "People don't resist change. They resist being changed." This idea is particularly relevant when working on a team and the educational team may feel uncertain about the need for change. Resistance can stem from longstanding practices or the belief that the student's needs are already understood. When introducing a new AAC system, practitioners must adopt a collaborative and coaching mindset to address resistance.

Elena Aguilar, in her book The Art of Coaching Teams (2016), explains that resistance often originates from fear. When individuals feel fear, they may exhibit behaviors such as arguing, withdrawing, or rejecting support. These behaviors often stem from unmet core human needs, which include:

- 1. Belonging Feeling part of a supportive community
- 2. Autonomy Having control and a voice in decisions
- 3. Mastery or Competency Feeling capable and effective
- Self-esteem A sense of worthiness, independent of achievement
- 5. Trust Confidence in others and the system
- Purpose Knowing one's role contributes to something greater

Resistance can manifest in various ways: not using the AAC device, leaving it out of reach, or failing to apply strategies like aided language input or modeling. When these are seen, it is important to identify what human need may be unmet and how it could be filled. Let's think about these areas of core human needs and look at a few of them related to the classroom and AAC usage. A team member may not feel they have had input into the AAC system selection and so they have an unmet need of belonging. An unfilled need in mastery of competency may stem from team members being unsure of how to use the device. They don't feel capable and effective with the system and this comes across as resistance. It is important to be able to get to the root of resistance and help identify the core unmet need. Using coaching questions can help teams have discussions that dig deeper and support understanding of what team members are feeling and experiencing.

NEXT STEPS

Collective efficacy requires intentional and purposeful planning in developing and leading a team to support AAC implementation. Coaching is a research-based process that can be used intentionally with any of the four sources of collective efficacy.

When coaching through AAC use, planning coaching stems can guide discussions and learning. Aguilar (2016), offers several examples:

- All-purpose: "I'm curious to hear more about..."
- Clarifying: "Tell me what you mean when you..."
- **Cathartic**: "I'm noticing you're experiencing some feelings. Would it be OK to explore those for a few minutes?"
- Supportive: "You did a great job when you..."
- Confrontational (Interrupting): "What's another way you might...?"

Imagine a scenario where a student's AAC device sits on a shelf, only used during therapy sessions. You could start with an all-purpose coaching stem: "I'm curious to hear more about how this student communicates during the day." This stem opens up the opportunity to gain information on what others see as happening with communication. A clarification question



Examples of the Four Sources of Collective Efficacy for AAC								
Mastery Experiences	Vicarious Experiences	Social Persuasion	Positive Emotional States					
Team selects activities and vocabulary to use in working toward a goal. They share data and review it together.	Video tape the stu- dent using the device and share it with other members of the team.	Send encouraging notes to another team member.	Discuss feelings about using the device.					
Team collaboratively comes up with lookfors (see image 2).	Discuss successes with other members of the team.	Praise team members when you see them supporting commu- nication, specifically when they are using AAC with the student.	Seeing the student excited when using the AAC system.					
Track student progress over time using the Communication Matrix to show growth.	Observe other stu- dents using AAC devices successfully.	During team meetings, give positive feedback.	Observing increased access to curriculum or peer interactions.					

Image 5: Examples of AAC activities for the four sources of collective efficacy.

could include, "Tell me what you mean when you said you understand what the student wants", or "Tell me more about how the student can express their emotions." If a response indicates frustration, use a cathartic stem: "I'm noticing you're experiencing some feelings right now. Would it be OK to explore those?" This approach acknowledges emotions while fostering collective efficacy and a shared vision.

Supportive stems encourage the person to use the collective efficacy sources of social persuasion and build positive emotional states. An example might be, "You did a great job waiting for the student to find the button they wanted and gave a good amount of wait time." Sometimes, a confrontational stem may be necessary. Always approach confrontation privately and with care, focusing on creating a safe space for open dialogue. For example, you might say, "What's another way you might support this student's communication without him relying on behaviors?"

Coaching through AAC use requires sensitivity, strategic planning, and a deep commitment to addressing resistance with compassion and clarity. By building collective efficacy and addressing resistance, we can create lasting positive change for students and teams alike.

CONCLUSION

The implementation of AAC presents multiple challenges for teams. Harnessing the four sources of collective efficacy can be highly effective for implementing evidence-based practices with students and determining and attaining a shared goal. Collective efficacy is built through an intentional process and pooling of resources, and energy. "There needs to be attention to ensure collective efficacy is not seen as mere teachers working together and meeting, and the focus of the efficacy needs to be clearly on maximizing the impact on students." (Hattie 2019) Leveraging collective efficacy to support AAC implementation in teams can build positive momentum and fully realize the infinite potential of the student's communication and language. This momentum provides the necessary resilience for teams to navigate challenges, maintain progress in AAC implementation, and ultimately drive student success to independent communication.



www.closingthegap.com/membership | April / May, 2025 Closing The Gap © 2025 Closing The Gap, Inc. All rights reserved.

REFERENCES

- American Speech-Language-Hearing Association. (n.d.). Augmentative and alternative communication (AAC). ASHA Practice Portal. Retrieved January 30, 2025, from https://www.asha.org/practice-portal/professional-issues/ augmentative-and-alternative-communication/#collapse_1
- Association of California School Administrators. (n.d.). Building teacher efficacy. *Leadership*. Retrieved January 30, 2025, from https://leadership.acsa.org/building-teacherefficacy#:~:text=Collective%20efficacy%20beliefs%20 also%20emerge,beliefs%20(Bandura%2C%201997)
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. https://educational-innovation.sydney.edu.au/news/pdfs/ Bandura%201977.pdf
- Bright Morning. (n.d.). Bright Morning. https://brightmorningteam.com/
- Donohoo, J. (2017). Collective efficacy: *How educators' beliefs impact student learning*. Corwin.
- Donohoo, J., Hattie, J., & Eells, R. (2017). The power of collective efficacy. *Educational Leadership*, 74(5), 40–44. https:// educacion.udd.cl/files/2021/01/The-Power-of-Collective-Efficacy_Hattie.pdf
- Derbiszewska, K. M., & Tucker-Smith, T. N. (2020). Supercharge your professional learning: 40 concrete strategies that improve adult learning. CAST, Inc.
- Elsevier. (n.d.). Sources of self-efficacy. *ScienceDirect*. Retrieved January 30, 2025, from https://www.sciencedirect.com/ topics/social-sciences/sources-of-self-efficacy
- Faddis, T., Fisher, D., & Frey, N.. (2023). Collaborating through collective efficacy cycles: Ensuring all students and teachers succeed, A Playbook.. Corwin Press, Inc.
- Hattie, J. (2015). What works best in education: The politics of collaborative expertise. Pearson.
- Henry, S. A., & Myles, B. S. (2007). Comprehensive Autism Planning System (CAPS) for individuals with autism spectrum disorders and related disabilities. Autism Asperger Publishing Company.
- Lorang, E., Hall-Mills, S., Greer, K., & Binger, C. (2022). Speechlanguage pathologists' practices in augmentative and

alternative communication during early intervention. *Augmentative and Alternative Communication*, 38(1), 41–52. https://doi.org/10.1080/07434618.2021.2007404

- Missouri Department of Education. (n.d.). Essential function 1: Unpacking CTE's impact on student learning. SAIL. Retrieved January 30, 2025, from https://www.moedu-sail. org/topic/essential-function-1-unpacking-ctes-impact-onstudent-learning-2/
- National Institute on Deafness and Other Communication Disorders. (n.d.). United States Society for Augmentative and Alternative Communication (USSAAC). Retrieved January 14, 2025, from https://www.nidcd.nih.gov/directory/ united-states-society-augmentative-and-alternativecommunication-ussaac
- Visible-Learning.org. (2024). *Hattie effect size list 256 influences related to achievement*. https://visible-learning.org/hattieranking-influences-effect-sizes-learning-achievement/
- Visible Learning MetaX. (n.d.). Visible Learning MetaX. https://www.visiblelearningmetax.com/
- Yau, S. H., Choo, K., Tan, J., Monson, O., & Bovell, S. (2024). Comparing and contrasting barriers in augmentative alternative communication use in nonspeaking autism and complex communication needs: Multi-stakeholder perspectives. *Frontiers in Psychiatry, 15,* Article 1385947. PubMed Central. ■



Closing The Gap ²⁹ CONFERENCE

TUESDAY - FRIDAY, OCT. 21-24 MINNEAPOLIS, MN Pre Conference Workshops: Monday and Tuesday, Oct. 20-21

43RD ANNUAL CONFERENCE OCTOBER 21-24, 2025

Pre Conference Workshops: Monday and Tuesday, October 20-21, 2025 DOUBLETREE BY HILTON HOTEL BLOOMINGTON See why Closing The Gap has earned a reputation for exceptional learning and plan now to join us for Closing The Gap 2025!



The Closing The Gap Conference is an annual assistive technology conference that presents an opportunity to deepen your assistive technology (AT) knowledge and strengthen your implementation strategies. The conference week is designed to dig deeper into critical areas that have the power, when implemented strategically, to transform your classroom, your school, your district, your practice. When you start thinking differently about how to reach ALL students, how to infuse technology into learning, how to leverage AT strategies in all areas – then we begin to transform these areas and ultimately increase achievement and independence.



THE CONFERENCE FOR EXCEPTIONAL LEARNING

INSIGHT

What Makes Closing The Gap Unlike Other AT

Conferences?

Immersive Learning: Each day is packed with engaging educational sessions led by experienced and expert presenters. The conference (Wednesday - Friday) is offered for up to 17 hours of CEUs. Add pre conference Monday and/or Tuesday for up to 14

more hours!

In-Depth Exploration: Unique to Closing The Gap, you'll find 1-hour and 2.5-hour sessions that provide participants with a deep dive into the latest topics in the field.

Topics include:

- accessibility & UDL assessment & IEPs
- augmentative and alternative communication
- (AAC) autism spectrum disorder (ASD)
- blind / low vision
- deaf and hard of hearing early childhood development
- instruction, literacy & inclusion
- leadership, policy & implementation
- mathematics
- mobility, mounting, seating & positioning
- research
- transition, employment & vocational rehab

Actionable Insights: In the exhibit hall, participants will discover valuable information, strategies, and products that can be directly applied to their work and improve their lives.

CONNECTIONS

Where the AT Community Comes to Network and Learn Renowned for its exceptional learning opportunities and vibrant networking atmosphere, this conference is truly one-of-a-kind!

Who should attend?

ANYONE interested in finding practical and readily available AT solutions for ALL disabilities, mild to significant, infant through adult.

- Speech Language
- Pathologists
- Occupational Therapists
- Physical Therapists
- Autism Specialists
- **Vision Specialists**
- Special Educators
- Special Education Directors
- Administrators University Instructors
- Technology
- Specialists
- Parents

- End Users
- Manufacturers / Producers / Company
- Representatives

CALL FOR PROPOSALS Share Your Knowledge and Expertise

Closing The Gap will consider proposals for one-hour or multiple-hour sessions that describe and/or demonstrate successful applications of assistive technology for persons with disabilities.

Groups or individuals who wish to participate should submit their proposals for one-hour and multiple-hour presentations as soon as possible.

LEARN MORE





Harnessing Assistive Technology Education: Innovative Approaches for Preparing Occupational Therapy Students

Summary: The breadth of assistive technology (AT) options makes it challenging to effectively teach implementation of AT in entry level education. This article explores the benefits of using a near-peer teaching model in an assistive technologies class in an entry level occupational therapy doctoral program.

INTRODUCTION

Assistive technology (AT) is used by occupational therapy practitioners across practice settings to help clients with a variety of diagnosis (Dishman, 2021). The 2023 Accreditation Standards for Occupational Therapy Education (ACOTE) state that occupational therapy (OT) and occupational therapy assistant (OTA) students must be able to implement AT "to reflect the changing needs of the client, sociocultural context, and technological advances" (B.3.8). However, preservice training for OT and OTA students varies across curriculums, and many practicing therapy professionals report feeling unprepared to use AT with their clients (Dishman, 2021). In addition, AT broadly spans across many different categories including augmentative and alternative communication, AT for cognition, smart home technology, computer and gaming access, seating and mobility, and technology for learning disabilities. This breadth of AT options makes it challenging for faculty and entry level programs to consistently introduce students to everything available. One potential solution to this education challenge is near peer teaching (NPT). This article will discuss the unique way that the occupational therapy department at Virginia Commonwealth University has harnessed NPT to facilitate confidence and learning outcomes in entry level training around assistive technology.

THE ROLE OF ASSISTIVE TECHNOLOGY IN OCCUPATIONAL THERAPY PRACTICE

Assistive technology, as defined by the Assistive Technology Act of 2004, is "any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities" (29 U.S.C. Sec 2202(2)). Furthermore,



LAUREN ANDELIN, OTD, OTR/L, BCP, Lauren Andelin, OTD, OTR/L, BCP is a pediatric occupational therapist with 15 years of clinical experience. Dr. Andelin is an assistant professor in the Department of Occupational Therapy at Virginia Commonwealth University. She also serves as the chairperson for AOTA's Sensory Integration and Processing Special Interest Section and has specialty training in sensory integration and assistive technology.



ISAIAH WILLS, OTD, OTR/L, Isaiah Wills is an occupational therapist who graduated from Virginia Commonwealth University in 2024. Since graduation, Dr. Wills has worked with Live Life Therapy Solutions, Inc. and the Technology for Home grant in Minnesota.

LiveLife Therapy Solutions, Inc. provides a wide range of assistive technology services related to environmental controls, AAC, safety, mobility, and home modification needs. Isaiah works with a group of occupational and speech therapists who specialize in adaptive video gaming and computer access.

20

www.closingthegap.com/membership | April / May, 2025 **Closing The Gap** © 2025 Closing The Gap, Inc. All rights reserved.



assistive technology service is defined as "any services that directly assists an individual with a disability in the selection, acquisition, or use of an assistive technology device." As related service providers, occupational therapy practitioners should be key members of the teams that assist individuals with disabilities in AT services delivery. Occupational therapy, as defined in the occupational therapy practice framework: Domain and Process–Fourth Edition (2020), is the "therapeutic use of everyday life occupations with persons, groups, or populations for the purpose of enhancing or enabling participation." The American Occupational Therapy Association's Position Statement regarding AT devices and services in occupational therapy practice (2024) clearly states the relevance of AT across every aspect of service delivery for OTPs in a variety of practice settings, age groups, and disability profiles.

While AT services were once considered a specialized area of practice for OTPs, the influx of commercially available assistive technology as well as the integral role of technology across all aspects of occupational participation, makes it essential for all OT practitioners to have foundational skills related to AT across the OT process (AOTA, 2024). While "assistive technology" can be used to encompass the general areas of devices, services, and systems, the AOTA Position Statement (2024) categorizes AT devices into general functional categories including personal mobility, community mobility, communication technologies, computer and mobile technologies, robotics, technologies for the home, and activities of daily living and self care.

CHALLENGES IN AT EDUCATION

The 2023 Accreditation Council for Occupational Therapy Education guidelines contain two curriculum standards directly referring to education around AT. In general, OTP students must implement AT "to reflect the changing needs of the client, sociocultural context, and technological advances" (B.3.8). In addition, ACOTE specifies that OT and OTA students must "apply the principles of assessment" and "describe the collaboration process with OT" respectively "to identify appropriate features of assistive technologies and durable medical equipment to support the client's participation". OT students must demonstrate the ability to "design, fabricate, apply, fit, and train in assistive technologies and devices used to enhance occupational performance" (B.3.15). Since AT encompasses such a wide breadth of categories and services and the language supporting its integration in occupational therapy education is general, it is not possible for each program to have the same activities and learning objectives for specific types of AT. Therefore, while each program must demonstrate learning activities to achieve these minimum standards, the depth of material and access to AT is variable across accredited OT and OTA programs. In addition, advanced training in AT varies across OTP faculty, further limiting the generalizability of curricular materials.

While some occupational therapy programs dedicate whole courses to the implementation of assistive technology across practice settings and among a variety of clients, other programs include less than a full day of content directly relating to assistive technology. Furthermore, research demonstrates (Penman et al, 2024) the value of hands-on learning and exposure to the different types of equipment and AT that clinicians might encounter in practice, but financial resources and variability in equipment cause further variability in the experience of students in their pre-services training to AT. As new OT and OTA graduates enter the field of occupational therapy, their individual fieldwork experiences and programmatic exposure to AT typically dictate their interest in pursuing further advanced training in AT, perpetuating the cycle of limited exposure.

NEAR-PEER TEACHING

Near-peer teaching (NPT), generally understood to be a method of peer teaching where the student in the teaching role is at least one year ahead in the same academic program than the students in the student role, can be an effective method to enhance learning outcomes for both the student teacher and the peer (Pinter, et al, 2021). NPT, a subset of peer-assisted learning and sometimes referred to as near-peer mentoring, near-peer tutoring, or cross-peer assisted learning, often occurs in small groups where the more experienced peer models and reinforces learning of their less experienced peers, thereby both teaching peers and learning through teaching (Penman et. al, 2024). The idea behind NPT is that both the near peers and the near learners are cognitively and socially congruent. The more advanced near-peers can explain difficult topics and/or how they learned a more complex technical skills or concept to less academically advanced peers with shared student roles, problems and demands (Loda et. al, 2019). Students learning from near-peers have reported lower pressure when learning from near-peers, leading to more willingness to take risks in their learning. In addition, the near peer teachers gain confidence and teamwork skills to help them in their future practitioner roles (Markowski et. al, 2021).

HARNESSING NEAR-PEER TEACHING IN ASSISTIVE TECHNOLOGY EDUCATION FOR OCCUPATIONAL THERAPY STUDENTS

During their final semester of academic programming, entry level occupational therapy doctoral (OTD) students are required to complete a doctoral capstone experience (DCE). The DCE consists of a 14 week full-time experience and final project, demonstrating the synthesis and application of knowledge gained during indepth exposure to one or more focused areas. The OTD program at Virginia Commonwealth University (VCU) structures capstones around three central tracks (Education, Community, and Research), encompassing the eight knowledge areas identified by the Accreditation Council for Occupational Therapy Education (ACOTE,



2023). In VCU OT's Education track, students have opportunities to explore academia, gain and apply skills related to the scholarship of teaching and learning, and utilize NPT to the mutual benefit of faculty and students.

In the VCU OTD curriculum, we have a three-part activities series, culminating in a 3 credit (1 lecture and 2 lab) course dedicated to using assistive technologies in OT practice. During their final didactic semester in the program, students enroll in the AT course which covers an expansive range of assistive technologies and spans across ages, diagnoses, and practice settings. Throughout the 15 week course, learning activities are scaffolded to allow students an opportunity to experience the AT continuum and service delivery model in a comfortable and engaging environment that encourages hands-on exploration and problem solving.

During their first module, students learn about different frameworks to guide their professional reasoning. While students are exposed to several different models, the course primarily teaches students to use the Human Activities Assistive Technology (HAAT) and Student Environment Task Technology (SETT) frameworks to reason through their AT solutions.





Images 1 and 2: Students creating visual representations of their clinical reasoning for AT solutions using the HATT or SETT frameworks.







Images 3-5: Visual representations of student's clinical reasoning using the occupational therapy process (OTPF-4) and chosen AT theory to support their reasoning.

















Images 6-12: Students engaging in a case study "fair", learning from peers about different cases and AT solutions recommended for the different scenarios.



In subsequent weeks, students are systematically introduced to various types of AT through lectures, hands-on learning, team based problem solving, and innovative lab activities (e.g., escape rooms (Images 13-17; videos Smart Home 1-4), team based lab activities (Images 18-19), mini design challenges (images 20-26), and practical exams involving case studies and demonstrations of solutions in real time.

Smart Apartment Escape Room Image 13 Scenario

You and your team are a group of occupational therapy students locked in a smart apartment. The door is locked, and the remote to unlock it is missing. To escape, you must use your OT knowledge and skills to identify and implement assistive technology (AT) interventions for Josiah, a 38-year-old client with a diagnosis of cerebral palsy.

Once you choose appropriate AT interventions, you'll trial them within the smart apartment. Successfully implementing the interventions will ultimately reveal the location of the missing remote, unlocking the door, and allowing you to escape.









Images 13 through 17: Students participating in escape room lab activity (Image 13) to learn about smart home technology in the smart apartment in VCU's College of Health Professions Building.

www.closingthegap.com/membership | April / May, 2025 **Closing The Gap** © 2025 Closing The Gap, Inc. All rights reserved.



Video Smart Home 1-4 Students participating in escape room lab activity to reason through a client scenario to determine assistive technology solutions using data driven decision making for precision therapy (Schaaf et. al 2015)



YouTube Video - Video Smart Home 1 https://www.youtube.com/shorts/f79eJCkmnRc



YouTube Video - Video Smart Home 2 https://www.youtube.com/shorts/UpbUp1D9Z2Y



YouTube Video - Video Smart Home 3 https://www.youtube.com/shorts/8wNqB7Zc6Bg



YouTube Video - Video Smart Home 4 https://www.youtube.com/shorts/EbEUNwuR4y4





Images 18-19: Students participating in team based lab to learn about setting up smart plugs and home routines using Amazon Alexa.





Older Adults with Diminished Hand Functionality: Medication Management







Extender tab

grasp pulls Image 23



Images 21-24: Examples of students' low tech and commercially available inclusive design solutions.

2. Brainstorm broad solutions: a. Think about what could have been done during the initial design or building process to improve usability for everyone, not just a specific group of users.

b. Consider commercially available products you could buy or install that would make the space more usable for everyone, not just a specific group of users

c. Then, focus on low-tech, low-cost modifications you can implement within the space using the provided toolkit (e.g., paper, tape, etc.). Your modifications should improve usability for everyone, not just a specific group of users

- 3. Implement your low-tech modifications and take before-and-after photos of the space.
- 4. Create a Google Slide with:
 - a. Photos of your space before and after your modifications
 - b. Descriptions explaining how your changes align with the UD principles and improve usability for all people.

Image 25

Image 25: Worksheet instructions for Universal Design Low Tech Design Challenge.



www.closingthegap.com/membership | April / May, 2025 **Closing The Gap** © 2025 Closing The Gap, Inc. All rights reserved.





Image 26: Example Low Tech Solutions for Spaces to increase accessibility of spaces.

Generally, the first half of the semester is dedicated to enhancing students' comfortability in creating solutions for home and community design as well as AT for mobility, including manual and power wheelchairs and alternative drive controls. The second half of the semester focuses on accessibility for computers and tablets, switch control, AAC, AT for leisure, and AT for cognition. While each week of class focuses on new content and/or new types of technologies, students are expected to build on previous knowledge to begin designing more complex and integrated solutions for their case studies as the class progresses. For their final practical exam, students are split into teams of two or three and asked to develop a comprehensive AT solution for a client with complex needs in areas that may include sensory, motor, and/or cognition. Through this practical exam, students are encouraged to creatively integrate all of the tools they have learned about over the semester, allowing them to practice the type of clinical reasoning that is expected in real world practice.

In addition to supporting lab development and updating the ever changing array of resources available for assistive technology, the near peer teacher collaborates with the faculty for the course to host a series of open lab opportunities for students to trial solutions and talk through clinical reasoning and ideas prior to the practical exam. Students report feeling more confident in experimenting with AT solutions through these experiences and student feedback for the near peer support is consistently positive. In the most recent cohort, students said, "[The NPT] was instrumental in advancing my understanding of AT, from the lab activities and open labs to [their] one-on-one conversations," and "Even on the off chance where [the NPT] was also confused–usually due to technical difficulties–, [the NPT] problem solved with us to help us figure it out."

CONCLUSION

The use of NPT to support the assistive technologies course in the VCU curriculum has been instrumental over the past five years, allowing our program to provide students with the skills

and clinical reasoning needed to support clients in the evaluation and implementation of AT in their future practice. Each year, a new capstone student becomes the near peer teacher, immersing themselves into the design and implementation of the course with close mentorship from the faculty member (first author) teaching the course. In addition, the student typically has a special topic of interest that enhances the course content as technology evolves. Last year's student, Isaiah Wills (second author) developed a comprehensive adaptive gaming module. First students learned about basic gaming systems and different assistive technology to support gamers of all abilities (images 27-28), and then students participated in a multi-station lab activity in teams to get hands-on experience with adaptive gaming (Videos AG 1-3). When Isaiah presented his adaptive gaming materials during one of the final weeks of the semester, students were prepared to layer onto their other knowledge. At this point, students had already worked with different access methods (e.g., head, eyes, hands, feet) and switch controls (e.g., one switch and two switch scanning, various types of switches) across a variety of platforms (e.g., tablets, desktop computers, mobile devices), so learning about how to incorporate this into the occupation of video gaming was an appropriate challenge. QR code 1(https://bit.ly/AdGaming) provides examples of Isaiah's materials and resources for others hoping to build on his work.







Images 27-28: NPT capstone student, Isaiah Wills (second author) presenting information about adaptive gaming prior to hands on lab activities that he developed for this module as part of his capstone project.



Image 29: Student using xbox adaptive controller to play Rocket League with different switches.



Image 30: Student using tobiidynavoxx PCI with surface tablet to play candycrush using eye gaze.



Image 31: Isaiah Wills (second author and 2024 capstone student teaching faculty member, Lauren Andelin (first author) to play a common video game using commercial controller.





YouTube Video - Video AG 1: Students use XBox adaptive controller and different switches to play Rocket League. https://www.youtube.com/watch?v=sVD85iEJ2CM



YouTube Video - Video AG 2: Students using Ablenet Hitch 2 switch interface with different switches to play battleship on imac computer.

https://www.youtube.com/watch?v=HyJ9-SG9L-I



YouTube Video - Video AG 3: Student using tobidynavox PCI with surface tablet to play candy crush using eye gaze access. https://www.youtube.com/watch?v=PZTIg5h1qVY



QR Code

As we continue to embrace the use of artificial intelligence (AI), particularly chatbots and other cognitive supports, this year's capstone student plans to develop materials for the course with a particular focus on AI. It is exciting to consider how the use of near peer teaching can continue to support occupational therapy students' confidence in using AT with their future clients.

SPECIAL THANKS

The Herbert and Charlotte Meyer Assistive Technologies Laboratory & Quiet Room in the VCU College of Health Professions, was made possible by Dr. John H. and Mrs. Carlyn Meyer Dalness, in memory of her parents. The lab space features advanced technology which provides occupational therapy students with further training as they prepare to serve patients in clinical settings after completion of their studies. https://chp. vcu.edu/about/featured-news/articles/a-look-at-the-assistivetechnologies-laboratory.html

REFERENCES

Accreditation Council for Occupational Therapy Education (2023). 2023 Accreditation

Council for Occupational Therapy Education Standards and Interpretive Guide.

https://acoteonline.org/accreditation-explained/ standards/

- Assistive Technology Act of 2004, 29 U.S.C. § 2202(2) et seq. (2004).
- Assistive technology devices and services in occupational therapy practice. *The American Journal of Occupational Therapy*, 2024, Vol. 78(Supplement 1), 7810410130. https://doi.org/10.5014/ajot.2024.785106
- Dishman, K., Duckart, J., & Hardman, L.J. (2021). Perceptions of assistive technology education from occupational therapists certified as assistive technology professionals. *American Journal of Occupational Therapy.* 75(2). doi: 10.5014/ajot.2021.041541. PMID: 33657353.



- Loda, T., Erschens, R., Loenneker, H., Keifenheim, K.E., Nikendei, C., Junne F., Zipfel, S., & Herrmann-Werner, A. (2019). Cognitive and social congruence in peer-assisted learning – a scoping review. PLoS ONE 14(9): e0222224. https://doi.org/10.1371/journal.pone.0222224
- Markowski, M., Bower, H., Essay, R., & Yearley, C. (2021). Peer learning and collaborative placement models in health care: a systematic review and qualitative synthesis of the literature. *Journal of Clinical Nursing*, 30(11-12), https://doi.org/10.1111/jocn.15661
- Penman, M., Tai, J., Evans, G., Brentnall, J., & Judd, B. (2024). Designing near-peer mentoring for work integrated learning outcomes: a systematic review. *BMC Med Education* 24(937). https://doi.org/10.1186/s12909-024-05900-6
- Pintér, Z., Kardos, D., Varga, P., Kopjar, E., Kovacs, A., Than, P., Szilard, R., Czopf, L., Zsuzsanna, F., & Schleg, A.T. (2021). Effectivity of near-peer teaching in training of basic surgical skills – a randomized controlled trial.BMC Medical Education, 21(156). https://doi.org/10.1186/s12909-021-02590-2
- Schaaf, R. C., & Mailloux, Z. (2015). Clinician's guide for implementing Ayres Sensory Integration: Promoting participation for children with autism. AOTA Press
- Zsuzsanna, F., & Schleg, A.T. (2021). Effectivity of near-peer teaching in training of basic surgical skills a randomized controlled trial. BMC Medical Education, 21(156). https://doi.org/10.1186/s12909-021-02590-2 ■

I Graduated, Now What?

Meaningful Opportunities for Community, Social Interaction, and Mentorship for AAC Communicators

Summary: "I Graduated, Now What?" explores how individuals with complex communication needs who use AAC can build meaningful lives after leaving school. The article follows Sidney Daswick's journey, showcasing opportunities for mentorship, community engagement, and personal growth. It highlights the role of strong support systems, including family and professionals, and shares practical strategies for fostering communication, social connections, and leadership. Readers will gain insight into post-graduation pathways that emphasize fulfillment, accessibility, and lifelong learning.

INTRODUCTION

Graduating from the structured environment of school can be both exciting and daunting, especially for individuals with complex communication needs who use augmentative and alternative communication (AAC). While school provides builtin support for social interaction, learning, and communication growth, the transition to life after graduation can often leave AAC users and their families asking, "What now?" Many AAC users may feel unsure about how to continue developing their communication skills, building relationships, and contributing meaningfully to the community, especially when traditional paths like higher education or employment may not align with their needs.

Sidney Daswick's journey exemplifies how an individual



SIDNEY DASWICK is a dedicated AAC user whose journey reflects resilience, creativity, and leadership. She actively engages in the AAC community as a tutor, mentor, and advocate, inspiring others through her work. Sidney co-hosts Traveling Talker Time AAC, leads an AAC Book Club, facilitates Out and About activities, mentors students, and hosts virtual events like Saturday Coffee Hour. Passionate about cooking, traveling, and teaching, she demonstrates how personal passions can shape a fulfilling and impactful life. sidneydaswick@gmail.com



KIM DASWICK, BSN, RN, is a dedicated advocate and support partner in Sidney's AAC journey. With a background in nursing, she combines her medical expertise with a deep commitment to fostering Sidney's growth, independence, and community engagement. Since Sidney's early years, Kim has played a vital role in providing both logistical and emotional support, ensuring she has the resources to thrive. Her dedication highlights the importance of family involvement in empowering AAC users to build meaningful lives. kimberlydaswick@gmail.com



MARY ANNE BARNO, CF-SLP, ATP is an Assistive Technology Analyst at Northern Arizona University's Assistive Technology for Employment and Independence (ATEI) Program and a CF-SLP at Therapy One. Since 2007, she has supported individuals with complex communication needs, providing both technical and practical support. As a RESNA Certified Assistive Technology Professional (ATP), she ensures AAC users have the tools and resources to succeed. Mary Anne leads an AAC user group in Central Valley, AZ, co-leads a virtual AAC group, and manages the Traveling Talker Time social media platform. She also organizes an AAC Book Club and summer Coffee Hour, fostering connection, mentorship, and shared learning within the AAC community. barno.mary@gmail.com



with complex communication needs using AAC can create fulfilling lives beyond school. Sidney has embraced a range of opportunities that foster personal growth, community engagement, and social interaction. This article highlights Sidney's experiences and strategies, demonstrating how meaningful participation and connection remain possible after graduation.

SIDNEY'S JOURNEY: BUILDING A MEANINGFUL LIFE BEYOND SCHOOL

Sidney Daswick is a passionate AAC user whose journey highlights resilience, creativity, and leadership. Currently attending day programs in Scottsdale and Flagstaff, Arizona, Sidney enjoys cooking, traveling, and teaching. Her work as a tutor, mentor, and advocate for the AAC community has inspired others and shows how non-traditional paths can lead to a rich, fulfilling life.

Sidney's contributions include co-hosting Traveling Talker Time AAC, leading an AAC Book Club, facilitating activities during Out and About, mentoring at a local school district, and hosting virtual events like a Saturday Coffee Hour. These activities not only enrich her life but also create opportunities for others to connect and grow. Sidney's story exemplifies how identifying and nurturing personal passions can lead to a meaningful and impactful life, even when the traditional education-to-career journey isn't the right fit.

Sidney actively contributes to the AAC community through initiatives such as:

- Co-hosting Traveling Talker Time AAC
- Leading an AAC Book Club
- Facilitating Out and About activities
- Mentoring at a local school district
- Hosting virtual events like Saturday Coffee Hour

These activities not only support her own growth but also provide others with opportunities for learning and connection. Her journey highlights how pursuing personal passions can lead to a life of impact, meaning, fulfillment and FUN!

THE ROLE OF SUPPORT SYSTEMS

KIM'S ROLE AS SIDNEY'S SUPPORT SYSTEM

Kim, Sidney's mother, has been a steadfast advocate for her daughter's success since the beginning of their AAC journey. Kim's involvement dates back to when Sidney was just three years old, and she has been a dedicated partner in Sidney's growth ever since. Kim actively seeks out opportunities for Sidney to learn, grow, and engage with the AAC community, providing both logistical and emotional support.

Kim's role extends beyond just organizing and facilitating; she is Sidney's biggest cheerleader. Whether helping Sidney prepare for tutoring sessions, navigating new opportunities, or celebrating milestones, Kim ensures that Sidney has the practical and emotional backing needed to continue developing. This collaboration between mother and daughter underscores the importance of family support in the lives of AAC users, ensuring they have the foundation to thrive.

MARY ANNE'S ROLE IN SIDNEY'S JOURNEY

Mary Anne, an Assistive Technology Analyst at NAU's Assistive Technology for Employment and Independence (ATEI) Program and a CF-SLP at Therapy One, has played a crucial role in Sidney's post-graduation growth. Since 2007, she has supported individuals with complex communication needs, using her experience to provide Sidney with both technical and practical support. As a RESNA Certified Assistive Technology Professional (ATP), she ensures Sidney has the necessary tools and resources to succeed.

Beyond her direct support, Mary Anne leads an AAC (Augmentative and Alternative Communication) user group in Central Valley, AZ, co-leads a virtual AAC group, and manages the Traveling Talker Time social media platform. Through these initiatives, she has fostered a strong AAC community built on connection, mentorship, and shared learning. Additionally, she organizes the AAC Book Club and summer Coffee Hour, creating spaces for AAC users to engage, learn, and build social connections.

Together, Mary Anne and Kim form an essential part of Sidney's support system. Their combined expertise and dedication empower Sidney, demonstrating how a strong support network can drive meaningful personal and community impact.

UNDERSTANDING SIDNEY'S COMMUNICATION GROWTH THROUGH THE DAGG-3 FRAMEWORK

The DAGG-3 framework is a valuable tool for assessing and supporting AAC users. It identifies different skill levels, helping to tailor support based on where an individual falls within the framework. By understanding these levels, caregivers, educators, and therapists can provide targeted interventions and opportunities that foster growth, independence, and effective communication for AAC users.

Sidney's development aligns with the following skill levels:

TRANSITIONAL INDEPENDENT

- Social Skills: Communicating effectively and in socially appropriate ways across different settings.
- **Operational Skills:** Ability to maintain, navigate, and operate the AAC system using the chosen access method with minimal support.
- **Strategic Skills:** Utilizing strategies to overcome or minimize the functional limitations of AAC to ensure effective participation.

BACK TO

CONTENTS

CONTEXT-DEPENDENT

- Linguistic Skills: Expressing and understanding language, learning and using vocabulary, reading, writing, and spelling.
- **Dependence on Context:** AAC users at this level rely on structured environments, familiar partners, and known topics to successfully communicate and engage.

Recognizing these distinctions helps tailor Sidney's support, ensuring her continued communication development.

NAVIGATING LIFE AFTER GRADUATION: KEY CONSIDERATIONS

As Sidney transitioned out of the school system, her parents found themselves contemplating how to best support her ongoing development. With no formal school structure to rely on, they focused on the questions that would guide their approach to ensuring Sidney continued to thrive. These thoughtful reflections shaped their efforts:

1. How can we continue fostering Sidney's communication development now that she is no longer in the school system?

With school behind her, Sidney's parents sought ways to maintain and even enhance her communication skills, ensuring she continued to learn new vocabulary, practice her communication device, and improve her interactions.

2. What steps can we take to help Sidney become more actively engaged in her community, given the limited opportunities available for adults with AAC?

Recognizing that community engagement was more challenging after graduation, they explored ways to create new opportunities for Sidney to participate in meaningful activities and raise awareness about AAC within their local community.

3. How can we support Sidney in building and maintaining meaningful social connections outside of school, especially considering her preference for passive activities like watching TV?

Sidney's parents understood the importance of her maintaining social relationships, so they looked for ways to help her interact with friends and peers, offering opportunities that felt natural and enjoyable to her.

4. What strategies can we implement to balance Sidney's personal growth, community involvement, and social interactions, while respecting her pace and preferences?

Above all, Sidney's parents aimed to strike a balance between supporting her development and giving her the flexibility to engage in activities as she felt comfortable, ensuring that these efforts were sustainable and suited to her needs. were able to create a plan that supported her holistic growth—fostering her communication skills, strengthening her community connections, and maintaining her social relationships in a meaningful way with her support team.

SIDNEY'S EDUCATIONAL AND MENTORSHIP JOURNEY

As Sidney transitioned out of the traditional school system, her educational journey evolved into a multifaceted approach that not only continued her learning but also empowered her to teach and mentor others. Together, as a team, we developed a series of flexible programs that were tailored to Sidney's goals, supporting her growth and fostering a strong learning community.

"I wanted to be a teacher. I like to help people." - Sidney Daswick

- 1. Teach and Talk was originally designed to empower Sidney to teach and mentor others in a relaxed, creative environment. The concept was inspired by an idea from Sidney's high school compensatory education teacher, which emphasized the value of sharing knowledge in an informal setting. Working with her support team, Sidney would collaborate during tutoring sessions to brainstorm and develop engaging lesson ideas. These lessons were then filmed and posted on YouTube and a dedicated website, giving Sidney the opportunity to connect with others while sharing what she had learned. The program focused on a no-pressure approach, emphasizing purposeful practice over performance, ensuring that each session contributed to Sidney's growth in a supportive learning environment. Although Teach and Talk no longer exists, the experience allowed for growth and adaptation, helping Sidney and her team understand what works best for her and her community moving forward.
- 2. Tutoring became a way for Sidney to mentor other AAC users at a local school district. She prepares for each session by working with her parents, care providers, and speech therapist, practicing her approach and refining the content. Although there were challenges in figuring out the logistics, such as who would help her prepare for the sessions and assist with transportation, her strong support system worked together to find solutions. With a clear plan in place, these hurdles were overcome, allowing Sidney to lead the tutoring sessions at the school. Through this process, she not only helps students see what they can achieve but also demonstrates the value of teaching using the same tools and methods they are learning to use. Sidney's role as a mentor highlights the importance of real-world application in learning and the power of peer-led teaching, showing that with the right support, meaningful participation is always within reach.
- By reflecting on these key questions, Sidney's parents
- 3. AAC Zoom Cast was created to offer engaging learning



experiences for individuals with communication challenges, especially during a time when traditional in-person interactions were limited. Inspired by the COVID-19 pandemic, which disrupted face-to-face activities, the idea for the Zoom Cast emerged to ensure continuity in learning and social connection for Sidney and others. Sidney collaborated with a speech therapist, who had long been involved in her educational journey, to plan weekly sessions and develop content. Monthly Zoom Cast events were hosted, integrated with Sidney's day program, and allowed for remote participation. The sessions were designed to be inclusive, featuring fun games and icebreakers to foster engagement for AAC users at all levels. Although the Zoom Cast is no longer an ongoing initiative, its creation was a valuable learning experience. It highlighted how things may come and go, and through these experiences, we learn what works for us and what doesn't, ultimately shaping the path forward.

4. Book Club was created to enhance literacy and communication skills among AAC users, while also addressing Mary Anne's need for additional graduate program hours. The program took a structured approach, centering around a book club that incorporated the established PRC-Literacy Planners, which provide curated books and monthly activities specifically designed for AAC users. To facilitate both inperson and virtual participation, existing PDF materials were transformed into interactive Google Slides. The Book Club's key features included using these established literacy tools to streamline the process, engaging AAC users in meaningful and interactive literacy activities, and utilizing Google Slides to foster dynamic collaboration and continuous support. This event continues to take place on a monthly basis, providing ongoing opportunities for literacy development and community engagement

KEY TAKEAWAYS

These programs and experiences represent a journey of growth, adaptation, and connection for Sidney, highlighting her commitment to not only developing her own skills but also empowering others in the AAC community. Each initiative—whether it's tutoring, Book Club, or virtual learning opportunities—has evolved to fit the changing needs and availability of both Sidney and her support team. The continuous learning and adjustment of these programs reflect the ongoing process of discovery and understanding what works best for each individual. While some programs may no longer be active or have undergone changes, the underlying goal remains the same: to create meaningful opportunities for communication, community, and growth. Sidney's story is a testament to the power of adaptability, support, and the belief that learning doesn't end after school—it simply evolves.

Related Reading: "Learning to Use Augmentative and Alternative Communication (AAC): Is There a Mentoring Role for Adults Experienced in Using AAC?" (Ballin, Balandin, Togher, & Stancliffe, 2009).

This research highlights how adults who use AAC express a desire for more opportunities to engage in meaningful work, whether paid or voluntary. Mentoring individuals learning to use AAC offers experienced users a chance to volunteer and positively impact their community. It underscores the importance of mentorship roles, emphasizing how initiatives like Sidney's can bridge the gap between personal growth and community contribution.

COMMUNITY ENGAGEMENT: BUILDING CONNECTIONS AND LEADERSHIP AMONG AAC USERS

For many adults who use AAC, community engagement opportunities can be scarce, particularly when compared to the social activities found in high school settings. Recognizing this gap, a community-driven effort was created with the goals of increasing AAC awareness, utilizing existing resources, and creating new opportunities for connection. This effort has evolved through collaborative feedback from AAC users and Speech-Language Pathologists (SLPs), identifying the need for shared leadership roles, especially for long-time users who have been part of the AAC community since childhood. The activities are evaluated and refined annually, with the aim of ensuring inclusivity and flexible participation, allowing members to engage as much or as little as they wish. This effort represents the power of community in fostering support, growth, and connection for AAC users.

"I love out and about. I have been going since I was small. We go to bowling, grocery stores, parks, museums, bookstores and ice cream shops. I like chocolate ice cream. Every year we go caroling December at mall. Walk to store and sing. My favorite. It is very fun. Awesome. I talk to people. I order food. I help do activity. Friends come and talk with me. We did yoga. I love yoga. It fun. We do in chair. Fun way to get out." - Sidney Daswick

1. Out and About group, founded 28 years ago by Dr. Caroline Musselwhite and Deanna Wagner, M.S., CCC-SLP, has become a vital community for individuals who use AAC, along with their families, friends, therapists, and mentors. This inclusive group welcomes people of all ages who use any communication device or system, gathering monthly for activities like visiting local restaurants, coffee shops, marketplaces, and hiking spots, with virtual meetings also available. As the group evolved, it became clear that sharing leadership was essential, particularly as long-time members grew from children into adults. To ensure the group remained dynamic and supportive, they began distributing



leadership roles to encourage greater collaboration. Longterm AAC users, including Sidney, expressed a strong desire to be more involved in leading, which led to a shift toward a more collective approach. The group has worked to create a framework that allows for shared leadership, where decisionmaking is collaborative, and communication is streamlined with the use of scripts and forms. Backup plans have also been put in place to ensure the group remains active and continues to function smoothly during periods of high demand. This approach allows for ongoing development in leadership opportunities, ensuring Sidney and other device users have the chance to contribute meaningfully and that the group can thrive despite any challenges that arise.

2. Sidney's Posse, her support network, consists of individuals who care deeply for her, offering ongoing support for both Sidney and her caregivers. Life presents constant challenges, which makes developing a long-term, informal support system essential. Sidney's close-knit group of friends and family are committed to staying connected and offering mutual support through regular gatherings and shared experiences. Strategies are being developed to nurture and sustain these connections, fostering open communication and engagement among members. The support network remains fluid and adaptable, adjusting as Sidney's needs evolve over time. Key features of this network include its dynamic, ever-evolving nature, a group of individuals dedicated to Sidney's well-being, regular opportunities for social interaction and mutual support, and the flexibility to respond to life's changing circumstances while maintaining strong bonds.

KEY TAKEAWAYS

Sidney's experiences with the Out and About group and Sidney's Posse highlight the critical role that community plays in the lives of individuals with complex communication needs. These support networks not only provide ongoing opportunities for social interaction and engagement but also ensure long-term well-being by fostering connections that can adapt to changing needs over time. The Out and About group demonstrates the power of shared leadership and inclusive activities, offering a model for how groups can evolve and sustain themselves by encouraging collaboration and mutual support. Similarly, Sidney's Posse shows the importance of a close-knit, informal network that remains fluid and responsive, offering support for both the individual and their caregivers.

Related Reading: "The Loneliness Experiences of Young Adults with Cerebral Palsy who use Alternative and Augmentative Communication" (Cooper, Balandin, & Trembath, 2009).

This research examines the loneliness experiences of young adults with cerebral palsy who use AAC, emphasizing the critical role of community support and shared leadership. It reinforces the importance of initiatives like Out and About and Sidney's Posse in fostering meaningful connections and reducing isolation.

BUILDING SOCIAL CONNECTIONS: EXPANDING ENGAGEMENT THROUGH SOCIAL MEDIA, COFFEE HOUR, AND SPEECH THERAPY GROUPS

Sidney has tended to favor more passive forms of entertainment, such as watching her favorite cooking shows, which has limited her engagement outside of in-person interactions, making it more challenging for her to maintain relationships beyond school. To help Sidney overcome this, several focused strategies have been developed with clear goals: to encourage Sidney to engage with social media in ways that align with her personal interests, to create opportunities for her to express herself and connect with others through interactive content, and to help her strengthen meaningful relationships with friends and peers. These strategies include participating in social media for the Question of the Day, joining Coffee Hour for casual conversations, and attending Speech Therapy groups to practice conversational skills and engage in communication within a group setting. Together, these efforts provide a relaxed, pressure-free environment that fosters dynamic interactions, allowing Sidney to comfortably engage with others in both virtual and in-person settings.

"I like mocha frap. I like coffee hour. Talk with friends from everywhere. I tell fun facts or jokes. I ask about every friend day. I laugh have fun silly. Like being home and mocha frap and friends." - Sidney Daswick

- 1. Question of the Day encourages Sidney to engage with social media in a way that feels enjoyable and relevant to her interests. Sidney enjoys asking others about their day, making this a great opportunity to practice social skills and keep in touch with others. She uses a variety of strategies, including crafting her own questions, searching the web for new ideas, and utilizing her Alexa Page. These methods allow her to broaden her questions, explore different topics, and think about responses to new questions. The flexibility of choosing from random questions on her Alexa Page adds variety, creating a dynamic and enjoyable experience. This setup enables Sidney to work at her own pace in a comfortable, stress-free environment. The strengths of this approach include personalized engagement, which increases Sidney's investment in the conversation, and a user-friendly format that makes participation smooth and easy. Through this process, Sidney practices crafting questions, navigating her AAC tools, and connecting with others at her leisure.
- 2. Coffee Hour builds lasting social connections and friendships, even across distances, by offering Sidney a simple and accessible way to engage with others. While Sidney connects with many people, staying in touch can be challenging since



she does not text or make phone calls. Coffee Hour addresses this challenge by providing a relaxed, informal setting that makes it easy to maintain connections, even during busy times or with people who are geographically distant. During the summer, when there is a break from other programs such as Out and About and Book Club, Coffee Hour becomes a key opportunity to stay socially engaged. Virtual gatherings are scheduled at convenient times for both therapists and key participants, and a Zoom link is provided for regular meetups. The casual format encourages stress-free interactions, with participants invited to bring topics, questions, or personal insights to share. Fun elements, like sharing favorite drinks or interesting facts, enhance engagement and help strengthen social bonds.

3. Speech Therapy Groups are designed to promote social engagement among AAC users by facilitating interactions with both familiar and unfamiliar partners in a supportive, structured environment. These groups aim to help AAC users enhance their communication skills and build confidence through guided sessions. The groups allow multiple therapists to collaborate, offering a variety of perspectives. The sessions are flexible, accommodating different communication styles and individual needs. Participants engage in activities that encourage participation, build social skills, and provide opportunities to connect with new partners, helping to foster adaptability and confidence.

KEY TAKEAWAYS

The combination of social media engagement, Coffee Hour, and speech therapy groups offers Sidney a variety of ways to stay connected, practice her social skills, and build meaningful relationships. Each of these efforts creates an environment where Sidney can interact with others at her own pace, allowing her to develop and refine her communication abilities in both familiar and new contexts. By engaging with social media, Sidney can create personalized conversations that reflect her interests and communication style, while Coffee Hour provides a relaxed and informal space to maintain relationships despite distance. Meanwhile, speech therapy groups foster social engagement in a collaborative and structured setting, helping Sidney interact with a diverse group of individuals. Together, these opportunities ensure that Sidney has the tools and support to continue growing socially, boosting both her confidence and her sense of connection with others.

Related Reading: "Social Media has Opened a World of 'Open Communication': Experiences of Adults with Cerebral Palsy who use Augmentative and Alternative Communication and Social Media" (Caron & Light, 2016).

This research explores how social media facilitates open communication and enhances social connections for adults with cerebral palsy who use AAC. It highlights the empowering potential of social media, similar to the initiatives implemented for Sidney, in creating a sense of belonging and community.

CONCLUSION: EMPOWERING AAC USERS BEYOND GRADUATION

Graduating from the structured environment of school can be both exciting and overwhelming, especially for individuals with complex communication needs who use augmentative and alternative communication (AAC). Sidney Daswick's journey after graduation demonstrates how AAC users can continue to grow in educational, social, and community settings beyond the classroom. Through various tailored opportunities—such as engaging with social media, participating in the Out and About group, tutoring at a local school district, and attending Coffee Hour—Sidney has found meaningful ways to practice communication, build relationships, and contribute to her community. These activities provide Sidney with a supportive, adaptable framework to continue developing her skills, maintain connections, and thrive in both familiar and new environments.

Sidney's story highlights that each individual with complex communication needs is unique, requiring personalized support to foster growth across educational, social, and community areas. Just as Sidney has navigated this journey with customized approaches, others can also follow a similar path, shaped by their individual goals and interests. Support for AAC users must be flexible and responsive, offering diverse opportunities for connection, learning, and engagement. By creating experiences that reflect each individual's strengths and needs, we can empower AAC users to pursue ongoing growth and integration into the community. Sidney's experience demonstrates the potential for lifelong learning and social engagement, reminding us that the journey of development and connection does not end after school—it evolves into new opportunities for educational, social, and community involvement.

REFERENCES

- Ballin, L., Balandin, S., Togher, L., & Stancliffe, R. J. (2009). Learning to use augmentative and alternative communication (AAC): Is there a mentoring role for adults experienced in using AAC? Disability and Rehabilitation, 31(2), 122-129.
- Caron, J., & Light, J. (2016). "Social media has opened a world of 'open communication": Experiences of adults with cerebral palsy who use augmentative and alternative communication and social media. *AAC: Augmentative & Alternative Communication*, *32*(1), 25–40.
- Cooper, L., Balandin, S., & Trembath, D. (2009). The loneliness experiences of young adults with cerebral palsy who use alternative and augmentative communication. *AAC: Augmentative & Alternative Communication*, *25*(3), 154–164.

Tobii Dynavox. (2022). DAGG-3 Communication Tool. ■

