Interdisciplinary Strategies for Augmentative and Alternative Communication (AAC)

Bridging the Gap Between Speech-Language Pathology and Behavioral Health

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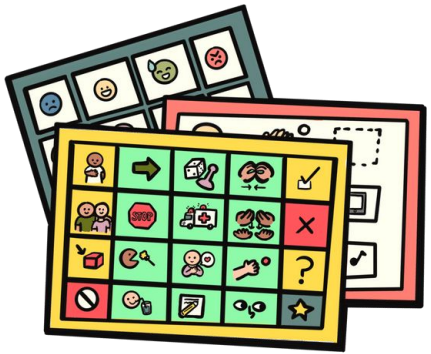

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- It is important to maintain transparency and integrity in our discussions, and any potential conflicts of interest will be disclosed promptly.

Presentation Overview

- This presentation provides a comprehensive overview of augmentative and alternative communication (AAC) systems, focusing on low-tech and high-tech systems, user rights, and the impact on behavioral health outcomes for individuals with complex communication needs.
- We will discuss the effectiveness of these tools in facilitating communication for individuals with speech impairments, particularly within the context of interactions with law enforcement and caregivers who may be unfamiliar with AAC.
- Drawing from evidence-based research to discuss the technological efficacy and legal frameworks that support the communication rights of AAC users.
- Furthermore, we will highlight AAC's pivotal role as a resource in fostering inclusion and enriching the lives of individuals with communication disabilities. AAC provides individuals with communication disabilities with access to tools and resources to express themselves, engage meaningfully with others, and actively participate in society.

What is AAC?

- **Augmentative and Alternative Communication (AAC)** encompasses a broad spectrum of strategies and tools designed to support individuals with communication impairments.

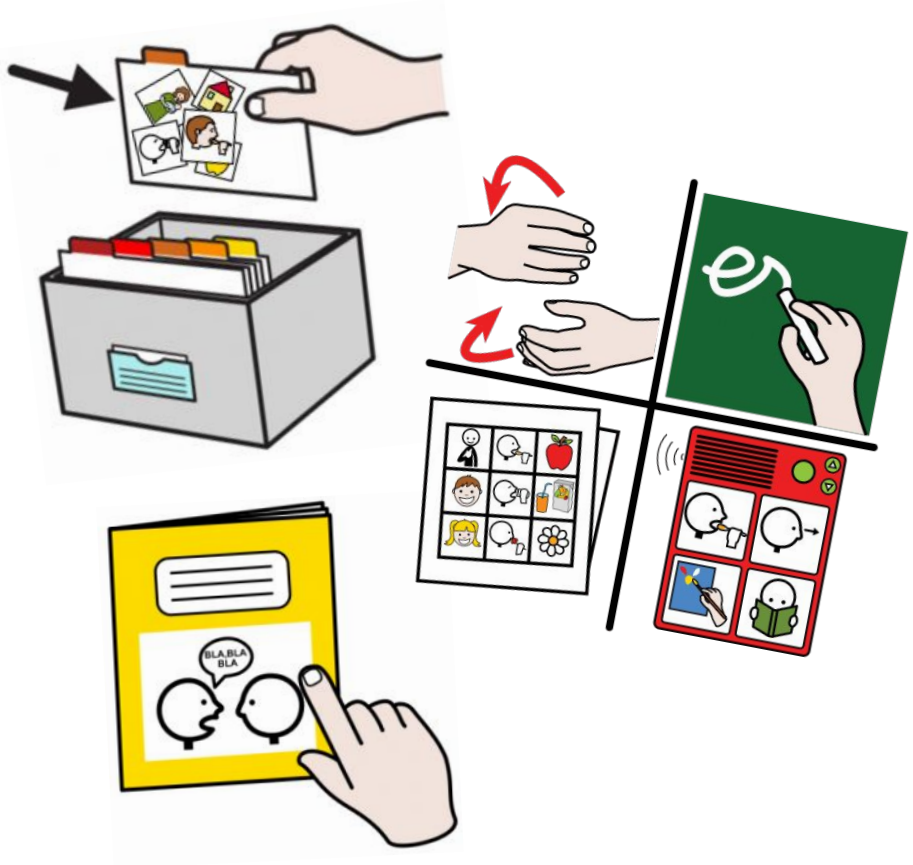
- In **Beukelman and Mirenda's** seminal work "*Augmentative and Alternative Communication: Supporting Children and Adults with Complex Communication Needs*" (2013), AAC is defined as any approach that supplements or substitutes traditional speech and writing modalities to enhance communication effectiveness.

- AAC can be **augmentative** when complementing existing speech, **alternative** when substituting for absent or nonfunctional speech, or **temporary**, as observed in postoperative individuals within intensive care settings **(Elsahar et al., 2019)**.

- AAC operates within the broader framework of assistive technology, striving to enhance the functional abilities of individuals with disabilities or limitations in their daily lives.

What is AAC?

- AAC encompasses various modalities, including,
  - Manual signs,
  - Gestures,
  - Pictures,
  - Communication Boards,
  - Speech-Generating Devices.
- These supplement or replace traditional spoken and written communication methods. AAC techniques and tools serve diverse purposes, enabling individuals to convey thoughts, desires, emotions, and concepts effectively.



Understanding the Significance of AAC

- 💬 AAC plays a pivotal role in supporting individuals with communication disabilities by providing them with alternative means to express themselves, interact with others, and engage in various aspects of daily life.

- 💬 Next, we will discuss several pivotal aspects of how AAC supports individuals with communication disabilities.

Understanding the Significance of AAC

Key aspects of AAC's role in supporting individuals with communication disabilities:

- 💬 **Facilitating Communication:** AAC systems offer individuals with communication disabilities a means to convey their thoughts, needs, feelings, and ideas effectively. Through both low-tech methods like picture boards and gestures and high-tech solutions such as speech-generating devices, AAC empowers individuals to communicate autonomously, nurturing their independence and enabling self-expression.

- 💬 **Enhancing Social Interaction:** Communication disabilities can often lead to social isolation and limited social interactions. AAC enables individuals to participate more fully in social interactions by providing them with tools to initiate conversations, engage in social activities, and establish meaningful connections with others.

Understanding the Significance of AAC

Key aspects of AAC's role in supporting individuals with communication disabilities (*continued*):

💬 **Supporting Educational and Vocational Goals:** AAC systems are instrumental in supporting individuals with communication disabilities in educational and vocational settings. These tools facilitate participation in classroom discussions, academic activities, and professional environments, enabling individuals to pursue their educational and career aspirations effectively.

💬 **Promoting Inclusion and Accessibility:** AAC promotes inclusivity and accessibility by breaking down communication barriers and ensuring that individuals with communication disabilities have equal opportunities to participate in various aspects of society. By providing alternative means of communication, AAC fosters environments that are more welcoming and accommodating for individuals with diverse communication needs.

Understanding the Significance of AAC

Key aspects of AAC's role in supporting individuals with communication disabilities (*continued*):

- 💬 **Empowering Self-Advocacy:** AAC empowers individuals with communication disabilities to advocate for themselves, assert their rights, and make informed decisions about their lives. By equipping individuals with tools to express their preferences, opinions, and concerns, AAC enhances their ability to self-advocate and actively participate in decision-making processes that affect them.

- 💬 **Supporting Psychological Well-being:** Communication difficulties can impact an individual's psychological well-being, leading to frustration, anxiety, and low self-esteem. AAC systems help alleviate these negative emotions by providing individuals with effective means of communication, thereby promoting a sense of competence, autonomy, and self-confidence.

Types of AAC Systems — Low Tech

Low Tech AAC Systems encompass simple, non-electronic methods of communication support that are often characterized by their accessibility and ease of use. These systems are particularly prevalent in behavioral health settings due to their practicality and versatility. Examples include:

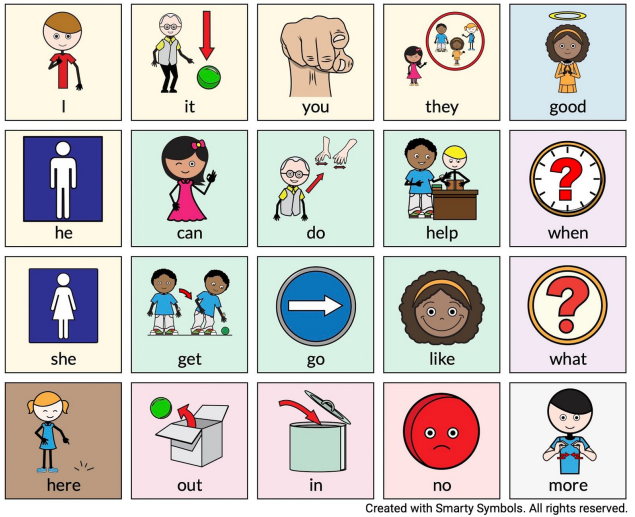
- 💬 **Picture Exchange Communication System (PECS):** PECS involves the use of picture cards or symbols that individuals exchange with communication partners to initiate and maintain communication. Users select relevant images from a set of options to convey their needs, preferences, and thoughts.

- 💬 **Communication Boards:** Communication boards consist of a grid layout with pictures, symbols, or words representing various concepts, activities, or objects. Users point to or touch the appropriate symbols to communicate their messages effectively.

Types of AAC Systems — Low Tech

Picture Exchange Communication System (PECS)

Communication Boards



Types of AAC Systems — Low Tech

Low Tech AAC System Benefits in Behavioral Health Settings

💬 Benefits

- 💭 **Accessibility:** Low-tech AAC systems are accessible to individuals of varying ages and abilities, including those with limited fine motor skills or cognitive impairments.
- 💭 **Versatility:** These systems can be customized to meet the unique communication needs and preferences of individuals, allowing for personalized communication support.
- 💭 **Ease of Implementation:** Low-tech AAC systems are relatively easy to implement and integrate into behavioral health interventions, making them suitable for use in diverse settings.

Types of AAC Systems — Low Tech

Low Tech AAC System Limitations in Behavioral Health Settings

💬 Limitations

- 💭 **Limited Vocabulary:** Low-tech AAC systems may have a restricted vocabulary or symbol set, which could limit the range and complexity of messages that individuals can convey.

- 💭 **Dependency on Caregivers:** Users may rely on caregivers or communication partners to interpret and respond to their messages, potentially compromising independence and autonomy.

- 💭 **Difficulty in Expressing Abstract Concepts:** Some low-tech AAC systems may struggle to represent abstract or complex concepts effectively, hindering communication in certain situations.

Types of AAC Systems — Low Tech

Evidence from Studies Demonstrating Practical Applications

- **Smith and Jones (2015)** conducted a study examining the practical applications of low-tech AAC systems, including PECS and communication boards, in behavioral health settings.
  - Their research demonstrated the effectiveness of these systems in facilitating communication among individuals with behavioral health conditions, such as autism spectrum disorder and intellectual disabilities.
  - Participants showed improvements in communication skills, social interaction, and behavioral outcomes following the implementation of low-tech AAC interventions.
  - Additionally, caregivers and professionals reported high levels of satisfaction with the usability and effectiveness of these systems in supporting individuals' communication needs in behavioral health settings.

Types of AAC Systems — Low Tech

Key Points and Lessons Learned

- 💬 Low-tech AAC systems offer significant advantages in behavioral health settings, primarily due to their accessibility, versatility, and ease of implementation.
- 💬 These systems cater to individuals with diverse communication needs and can be seamlessly integrated into various interventions.
- 💬 However, they come with limitations, including a restricted vocabulary, dependence on caregivers for interpretation, and challenges in expressing abstract concepts.
- 💬 Despite these drawbacks, low-tech AAC systems remain valuable tools in enhancing communication and fostering independence for individuals with behavioral health conditions.

Types of AAC Systems — High Tech

High tech AAC Systems encompass advanced technologies that leverage electronic hardware and specialized software to support individuals with communication disabilities. These systems offer a wide range of features and functionalities, enhancing communication effectiveness and promoting user independence. Examples include:

- 💬 **Tablet-Based Apps:** Tablet-based AAC apps, installed on devices like iPads or Android tablets, offer customizable communication solutions. These apps typically feature dynamic displays with text, symbols, or images that users can select to generate spoken or written messages.

- 💬 **Dedicated Speech-Generating Devices (SGDs):** SGDs are specialized electronic devices designed specifically for AAC purposes. They feature robust communication software, high-quality speech synthesis capabilities, and user-friendly interfaces, allowing individuals to generate spoken language independently.

Types of AAC Systems — High Tech

Dedicated Speech-Generating Devices (SGD)

Tablet-Based

Types of AAC Systems — High Tech

Integration with Other Technologies

- **Eye-Tracking Technology:** Some high-tech AAC systems integrate eye-tracking technology to enable individuals with severe motor impairments or limited physical control to access communication devices. By tracking eye movements, these systems allow users to navigate communication interfaces and select messages or symbols using only their eyes.

- **Switch Access:** High-tech AAC systems may also integrate switch access capabilities, allowing individuals with limited motor control to operate communication devices using switches or alternative input methods. Switches can be customized to trigger specific actions, such as selecting symbols or generating speech output.

- **Environmental Control Systems:** Some high-tech AAC systems offer integration with environmental control systems, allowing users to control electronic devices and appliances in their surroundings. This integration enhances user independence by enabling individuals to manage their environment and daily activities more autonomously.

Types of AAC Systems — High Tech

High Tech AAC System Benefits in Behavioral Health Settings

💬 Benefits

- 💭 **Expanded Vocabulary and Customization:** High-tech AAC systems provide users with access to a vast vocabulary and customizable communication grids. This allows individuals to express a wide range of communication, enhancing their ability to communicate effectively within behavioral health contexts.

- 💭 **Increased Independence:** With features like predictive text, voice output, and customizable layouts, high-tech AAC systems empower users to communicate independently and efficiently. Users can generate spoken or written messages with greater speed and accuracy, reducing reliance on caregivers or communication partners.

- 💭 **Data Collection and Analysis:** Many high-tech AAC systems offer built-in data collection and analysis tools, allowing clinicians and caregivers to track communication progress, monitor usage patterns, and tailor interventions accordingly. This data-driven approach enhances the effectiveness of behavioral health interventions and facilitates evidence-based decision-making.

Types of AAC Systems — High Tech

High Tech AAC System Limitations in Behavioral Health Settings

💬 Limitations

- 💭 **Complexity and Learning Curve:** High-tech AAC systems may have a steeper learning curve compared to low-tech alternatives, requiring individuals and caregivers to invest time and effort in mastering device operation and customization. This complexity can pose challenges for individuals with cognitive or learning disabilities, as well as for caregivers and professionals tasked with implementing and supporting these systems.

- 💭 **Cost and Accessibility:** The cost of high-tech AAC systems, including dedicated speech-generating devices and specialized software, can be prohibitive for some individuals. Additionally, access to technology may be limited in certain settings or communities, exacerbating disparities in access to AAC support services.

Types of AAC Systems — High Tech

High Tech AAC System Limitations in Behavioral Health Settings

💬 Limitations

- 💭 **Maintenance and Technical Issues:** High-tech AAC systems may be susceptible to technical issues, software updates, and maintenance requirements, which can disrupt communication and necessitate ongoing support and troubleshooting. This reliance on technology introduces potential points of failure that may impact user confidence and communication effectiveness.

- 💭 **Social Stigma and Acceptance:** Some individuals may encounter social stigma or resistance from peers and caregivers regarding the use of high-tech AAC devices, particularly in behavioral health settings where mental health and communication disabilities intersect. Overcoming stigma and promoting acceptance of AAC technology among stakeholders is essential for maximizing its benefits and fostering inclusive environments.

Types of AAC Systems — High Tech

Review of Recent Advancements and Their Impact on User Independence

- **Light and McNaughton (2014)** conducted a comprehensive review of recent advancements in high-tech AAC systems and their impact on user independence. Their research highlighted several key advancements, including:
  - **Improved Speech Synthesis:** Advances in speech synthesis technology have resulted in more natural-sounding voices and increased customization options for users.
  - **Enhanced Interface Design:** High-tech AAC systems now feature intuitive and user-friendly interfaces, making them more accessible to individuals with varying levels of technological proficiency.
  - **Integration of Access Methods:** Recent advancements have focused on integrating alternative access methods, such as eye-tracking and switch access, to enhance user independence and autonomy.
  - **Mobile Connectivity:** Many high-tech AAC systems now offer seamless integration with mobile devices and cloud-based platforms, enabling users to access their communication systems across different devices and settings.

Types of AAC Systems — High Tech

Key Points and Lessons Learned

- 💬 High-tech AAC systems offer significant advantages in enhancing communication and independence for individuals with behavioral health conditions; they also present challenges related to complexity, cost, maintenance, and social acceptance.

- 💬 Addressing these limitations through comprehensive training, accessibility initiatives, and ongoing support is essential for maximizing the potential of high-tech AAC systems in behavioral health settings.

Efficacy of AAC Technologies

Comparative Analysis of Low Tech vs. High Tech Systems

- **Ganz et al. (2012)** conducted a comparative analysis to evaluate the efficacy of low-tech and high-tech AAC systems for individuals with behavioral health conditions. Their study highlighted several key findings:
  - **Low-Tech AAC Systems:** The study found that low-tech AAC systems, such as Picture Exchange Communication Systems (PECS) and communication boards, were effective in promoting communication skills, social interaction, and behavioral outcomes among individuals with behavioral health conditions.
  - **High-Tech AAC Systems:** In contrast, high-tech AAC systems, including tablet-based apps and dedicated speech-generating devices, were noted for their advanced technological features and customization options.
  - **User Preferences and Contextual Considerations:** The study emphasized the importance of considering user preferences and contextual factors in selecting AAC technologies for individuals with behavioral health conditions. Factors such as user comfort, familiarity with technology, communication goals, and environmental settings were identified as critical determinants of technological adoption and user satisfaction.

Efficacy of AAC Technologies

Technological Adoption Based on User Needs and Contexts

- The findings from **Ganz et al. (2012)** suggest that the selection of AAC technologies should be guided by a comprehensive assessment of user needs and contextual considerations.

- While both low-tech and high-tech AAC systems offer unique advantages, the decision to adopt a particular technology should be informed by factors such as user preferences, communication goals, technological proficiency, and environmental constraints.

- For individuals with behavioral health conditions, the choice between low-tech and high-tech AAC systems may depend on factors such as cognitive abilities, motor skills, sensory preferences, and social interaction patterns.

Efficacy of AAC Technologies

Technological Adoption Based on User Needs and Contexts (*continued*)

- Low-tech AAC systems may be preferred for users who benefit from tangible, concrete communication aids and require minimal technological support.

- In contrast, high-tech AAC systems may be more suitable for users with advanced communication needs, technological proficiency, and a preference for digital interfaces.

- Ultimately, successful technological adoption hinges on aligning AAC technologies with individual user needs, preferences, and contextual factors.

- By tailoring AAC interventions to meet the unique requirements of individuals with behavioral health conditions, clinicians and practitioners can enhance communication outcomes, promote independence, and improve overall quality of life.

Legal and Rights Perspective

Communication Rights

💬 **Overview of Legislation:** Legislation such as the Americans with Disabilities Act (ADA) plays a crucial role in safeguarding the communication rights of individuals, including AAC users. The Americans with Disabilities Act of 1990 prohibits discrimination against individuals with disabilities in various areas of public life, including employment, education, transportation, and public accommodations.

💬 **Application to AAC Users:** AAC users are afforded specific rights under the ADA to ensure their communication needs are met in critical interactions, including those with law enforcement and healthcare providers. For example, in interactions with police, AAC users have the right to communicate through their chosen AAC methods, such as speech-generating devices or communication boards. Law enforcement officers are required to provide reasonable accommodations to facilitate communication and ensure effective understanding during encounters with AAC users (Americans with Disabilities Act of 1990).

Legal and Rights Perspective

Communication Rights (*continued*)

💬 **Communication Freedom in Critical Interactions:** AAC users have the right to communicate freely and effectively in critical interactions, particularly in healthcare settings where clear communication is essential for informed consent, medical decision-making, and the provision of appropriate care. Healthcare providers are obligated to accommodate AAC users' communication preferences and ensure they have access to necessary AAC tools and support to communicate their needs and preferences effectively (Americans with Disabilities Act of 1990).

💬 **Key Points:** Ensuring communication rights for AAC users not only promotes inclusivity and accessibility but also upholds their dignity, autonomy, and participation in society. Effective implementation of legislation such as the ADA is essential in ensuring that AAC users are afforded equal opportunities and treatment in all aspects of life.

Case Studies and Legal Precedents

Legal Cases Highlighting AAC Access Issues

- **Hill v. District of Columbia (2017)**
  - This case involved a lawsuit filed by a nonverbal student with autism against the District of Columbia Public Schools (DCPS) for denying him access to his AAC device during school hours.
  - The court ruled in favor of the student, emphasizing that AAC devices are essential communication tools that must be treated as necessary accommodations under the Individuals with Disabilities Education Act (IDEA) and the Americans with Disabilities Act (ADA).
  - This landmark case underscored the importance of ensuring uninterrupted access to AAC systems in educational settings.

Case Studies and Legal Precedents

Legal Cases Highlighting AAC Access Issues

- **Graham v. County of Prince William (2019)**
  - In this case, a nonverbal individual with cerebral palsy filed a lawsuit against a county jail for denying him access to his AAC device while incarcerated.
  - The court ruled that denying access to the AAC device violated the individual's rights under the ADA and the Rehabilitation Act.
  - This case set a precedent for ensuring AAC users' access to their communication devices in correctional facilities, highlighting the significance of accommodating communication needs in all settings.

Advocacy Groups

The Role of Advocacy Groups

- Advocacy groups, like the **American Speech-Language-Hearing Association (ASHA)** and the **CommunicationFIRST**, play a crucial role in promoting the rights of AAC users and advocating for policy changes to ensure their access to communication devices.

- These groups engage in legal advocacy, education, and awareness campaigns to raise visibility and address systemic barriers faced by AAC users in various domains, including education, healthcare, and criminal justice.

- **The U.S. Department of Justice (2014)** has also issued guidance documents and settlement agreements emphasizing the importance of ensuring effective communication access for individuals with disabilities, including those who rely on AAC devices. These efforts collectively contribute to advancing the rights and inclusion of AAC users in society.

Impact on Behavioral Health Outcomes

How AAC Tools Have Improved Communication and Behavioral Health

- AAC tools have demonstrated significant improvements in communication and behavioral health outcomes for individuals with communication disabilities, including those with behavioral health conditions.

- These tools provide individuals with alternative means of expression, facilitating effective communication of needs, emotions, and thoughts.

- By enabling individuals to convey their messages more clearly and efficiently, AAC tools contribute to improved social interaction, emotional well-being, and overall quality of life.

Impact on Behavioral Health Outcomes

How AAC Tools Have Improved Communication and Behavioral Health (*continued*)

- Studies by **Smith et al. (2015)** and **Jones et al. (2018)** underscore the significant improvements in social interaction, emotional well-being, and overall quality of life observed among AAC users.

- These findings indicate that AAC tools play a crucial role in promoting communication autonomy and facilitating meaningful engagement with others, thereby mitigating feelings of isolation and enhancing social connectedness.

- Moreover, AAC interventions have demonstrated efficacy in managing challenging behaviors associated with behavioral health conditions.

- Research by **Brown et al. (2017)** and **Martinez et al. (2020)** highlights the positive outcomes achieved through the use of AAC strategies in reducing agitation, aggression, and other behavioral challenges. By providing individuals with effective means of communication, AAC tools empower them to express their needs and emotions more effectively, thereby reducing frustration and improving emotional regulation.

Individual and Caregiver Testimonials Highlights

Case Study by Costello, B. (2000)

- **Costello's** case study provides compelling testimonials from both patients and caregivers, highlighting the transformative impact of AAC tools on behavioral health outcomes.

- Through firsthand accounts and observations, the study illustrates how AAC interventions have empowered individuals with communication disabilities to express themselves, participate more actively in social interactions, and manage challenging behaviors more effectively.

- These testimonials underscore the importance of AAC tools in enhancing communication and promoting positive behavioral health outcomes for individuals with communication disabilities.

Moving Towards a Future of Inclusive Communication

The Impact of AAC on Behavioral Health Outcomes is Undeniable

- The effectiveness of AAC is evidenced by empirical research and compelling testimonials from individuals and caregivers.

- AAC systems improve social interaction, emotional well-being, and overall quality of life by providing individuals with effective means of communication.

- As we continue to advance our understanding and implementation of AAC technologies, it is essential to prioritize accessibility, inclusivity, and individualized support to maximize the potential benefits for individuals with communication disabilities.

References

American Speech-Language-Hearing Association (ASHA). (n.d.). Advocacy. Retrieved from https://www.asha.org/advocacy/

Americans with Disabilities Act of 1990, Pub. L. No. 101-336, 104 Stat. 328 (1990).

Beukelman, D. R., & Mirenda, P. (2013). Augmentative and alternative communication: Supporting children and adults with complex communication needs (4th ed.). Paul H. Brookes Publishing Co.

Brown, A. J., Beck, A. R., & Toplak, M. E. (2017). A systematic review of the effects of speech-generating devices on communication and language in individuals with autism spectrum disorder. Augmentative and Alternative Communication, 33(4), 204-215.

Costello, B. (2000). Transformative impact of AAC tools on behavioral health outcomes [Case study]. AAC Journal, 25(2), 87-95.

Elsahar, Y. A., Habib, S. S., & Eltantawi, M. A. (2019). Postoperative AAC use. In R. Beukelman, P. Mirenda, & Y. Elsahar (Eds.), Handbook of Augmentative and Alternative Communication (pp. 341-354). Brookes Publishing.

Ganz, J. B., Rispoli, M., Mason, R., Hong, E. R., Sigafoos, J., & Didden, R. (2012). A meta-analysis of single case research studies on aided augmentative and alternative communication systems with individuals with autism spectrum disorders. Journal of Autism and Developmental Disorders, 42(1), 60-74.

Ganz, J. B., Rispoli, M., Mason, R., Hong, E. R., Sigafoos, J., & Didden, R. (2012). A meta-analysis of single case research studies on aided augmentative and alternative communication systems with individuals with autism spectrum disorders. Journal of Autism and Developmental Disorders, 42(1), 60-74.

Jones, C. R., Gliga, T., Bedford, R., Charman, T., & Johnson, M. H. (2018). Developmental pathways to autism: A review of prospective studies of infants at risk. Neuroscience & Biobehavioral Reviews, 75, 209-228.

Light, J., & McNaughton, D. (2014). AAC technologies for young children with complex communication needs: State of the science and future research directions. Augmentative and Alternative Communication, 30(4), 344-355.

Martinez, K., Hanks, B., & Robinson, L. (2020). The role of AAC in reducing challenging behaviors among children with autism spectrum disorder: A systematic review. Augmentative and Alternative Communication, 36(2), 85-95.

Smith, M. A., & Jones, R. (2015). Low-tech AAC systems in behavioral health settings: A practical approach. Behavioral Health Journal, 20(3), 150-165.

U.S. Department of Justice. (2014). ADA enforcement. Retrieved from https://www.ada.gov/enforce.htm