Augmentative and Alternative Communication to Support Meaningful Participation

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Individuals with complex communication needs

- Approximately 5 million Americans are unable to rely on speech to communicate
- As a result, they are severely restricted in their participation in education, employment, healthcare, family, & community

Augmentative & Alternative Communication (AAC)

- AAC provides a means to support communication & participation for individuals with limited or no speech
- Unaided AAC
  - Requires only the individual’s body
  - E.g., gestures, pantomime, signs (Beukelman & Mirenda, 2013)

Aided AAC

- Aided AAC
  - Requires some form of external support
    - Low tech communication boards or books
    - Picture Exchange Communication Symbols PECS
    - Visual schedules
    - Assistive technologies with speech, text, & electronic output
  - (Beukelman & Mirenda, 2013)
Benefits of AAC

- Research demonstrates that AAC
  - Enhances communication
  - Supports language development
  - Increases participation
  - Reduces challenging behaviors
  - At no risk to speech development
  - (Light, McNaughton, & Caron, 2019)

Benefits of AAC extend

- Across ages
  - Infants, toddlers, preschoolers, school-aged children, adolescents, & adults
- Across individuals with
  - Autism spectrum disorder, cerebral palsy, Down syndrome, intellectual developmental disabilities, multiple disabilities, etc.

How can we best support individuals with complex communication needs who require AAC?

Start as early as possible

AAC supports communication, language development, & learning
AAC does not inhibit speech development
Gina is 10 months old. She has Down syndrome, and lives at home with her parents and her older sisters. She does not talk. She loves looking at books and loves animals, especially the family dog, Blue.

Research shows AAC supports language development

- Research shows that AAC results in significant increases in the frequency of communication turns & number of unique concepts expressed by
  - Infants, toddlers, & preschoolers with ASD, IDD, & CP
  - Adolescents & adults with severe disabilities who are beginning communicators
  - E.g., Drager et al., 2019; Holyfield et al., 2019; Light et al., 2012; 2016; Light & Drager, 2017; Light, McNaughton, & Caron, 2019

Support participation in social interactions

Don’t just focus on requests for food & activities
Use AAC to foster social interaction
Charlie is 8 years old and has ASD. He lives at home with his parents and his younger brother. He uses some sign approximations and he exchanges picture symbols (PECS) to make requests for preferred activities. He likes to look at books and watch videos. He struggles to interact socially with his peers.

**AAC supports social interaction**

- Choose motivating shared activities
  - E.g., preferred books or videos
- Add photos of book pages or preferred videos to AAC apps
- Add fun, motivating vocabulary with relevant speech output & sound effects to support communication
- Encourage participants to take turns
  - Wait and allow partner to communicate
  - Respond to partner

**Research shows AAC supports social interaction**

- Research shows that AAC supports social interactions
  - Preschoolers with ASD & IDD demonstrate increased turn taking & engagement with peers (Therrien & Light, 2016, 2018)
  - Adolescents with ASD, Down syndrome, IDD, & CP demonstrate increased turn taking & engagement with peers (Babb, 2020)

**AAC supports communication for many purposes**

- Too often intervention focuses only on teaching requests
  - “There is more to life than cookies”
- Use AAC as a means to support social interactions with peers
  - Social interactions form the foundation for friendships
  - Essential to quality of life
Ensure appropriately high expectations

Develop skills to fulfill meaningful roles
Use AAC to teach literacy skills

AAC can support literacy learning

- Literacy skills are critical to all aspects of life
  - Literacy allows individuals to communicate any message
- More than 90% of individuals with complex communication needs enter adulthood without literacy skills
- As a result, they are severely restricted in their access to education, employment, healthcare, & community living
- But it doesn’t have to be this way

Sandra is 14 years old and has cerebral palsy. She uses speech but unfamiliar partners have difficulty understanding her. She uses picture-based AAC technology to clarify.
She attends a life skills program at school; she has not received literacy instruction.
She wants to get a job at the SPCA and volunteer at her church but is limited by her lack of literacy skills.

Provide adapted evidence-based literacy instruction

- Utilize meaningful & motivating materials
- Target appropriate skills
  - Teach letter sound knowledge, sound blending, decoding, phoneme segmentation, encoding, reading comprehension
- Use evidence-based instructional procedures
  - Model, guided practice, independent practice
- Adapt instruction
  - Support alternative response modes
AAC technologies support literacy learning

- Tiffany is 22 years old.
- She has Down syndrome and a history of seizures.
- She lives at home with her parents and two sisters.
- She loves bowling and wrestling.
- She attends a post-secondary program for adults with IDD.
- She did not receive literacy instruction at school.
- She uses an AAC app with pictures to clarify her speech.

Use AAC to support literacy learning

- Utilize AAC apps with the transition to literacy (T2L) feature
  - Individual selects picture symbol
  - Text appears dynamically
    - Movement attracts individual’s attention to the written word
  - Word is spoken out
    - Links text to speech
  - Text is also linked to picture symbol to promote understanding of meaning

Research shows AAC technologies can support literacy learning

- Research shows that AAC apps with T2L support literacy learning
  - Research with more than 50 individuals with ASD, CP, Down syndrome, IDD
    - Ages 3-50+
  - 91% increased their reading skills using AAC to support the transition to literacy
  - Learned to read words with only 1-17 minutes of exposure to dynamic text
    - E.g., Boyle et al., 2017; Caron et al., 2018; Holyfield et al., 2018; Light, McNaughton, & Caron, 2019; Mandak et al., 2018

Focus on increasing participation in meaningful real world contexts

Target motivating goals
AAC supports participation in the community

James is 21-years old and has severe ASD. He has no functional speech. He is currently participating in a vocational training program at the school library. His responsibilities include checking books in and sorting books. He is very dependent on his job coach to assist him in completing his work tasks; he rarely communicates.

AAC supports participation

- Introduce AAC technologies with video visual scene displays (VSDs)
- Combine benefits of
  - Video modeling
  - AAC supports
- AAC video VSD technology
  - Capture video of each step of the activity
  - Individual watches video of each step
  - Video pauses at end of each step
  - Automatically provides VSD with relevant vocabulary
  - Individual completes step / required communication

AAC supports community participation

- Research shows that AAC apps with video VSDs support successful participation in employment, volunteer, & community activities
- All participants demonstrated significant increases
  - # of steps completed successfully
  - # of communication opportunities fulfilled successfully
  - >90% successful independent participation
- (O’Neill et al., 2017; Babb, Gormley, et al., 2018; Babb et al., in press)

Impact of AAC to support participation

- “I think it's very powerful to see them go from where they started and then, in a matter of a couple of weeks, to be able to work independently. That was just absolutely incredible. You could just see the pride - the students were feeling very successful.”

Effects of AAC supports

• AAC offers the potential to enhance
  • Communication
  • Language learning
  • Social interaction with peers
  • Literacy learning
  • Participation in education, employment, healthcare, & community living

Take away messages

• Start as early as possible
  – AAC supports learning
• Support a wide range of communication goals
  – Use AAC to foster social interactions
• Ensure appropriately high expectations
  – Build skills to fulfill meaningful roles
• Focus on increasing participation in real world contexts
  – Target meaningful and motivating goals

Conclusion

• It is necessary, but not sufficient, to provide evidence-based AAC technologies & interventions
• Also required is a deep commitment to the fundamental right of all individuals to have the opportunity to attain their full potential.

https://aac-learning-center.psu.edu/2018/10/14/the-folly-of-fortune-telling/
Further resources on AAC

- For further information and videos on AAC interventions, please visit
  - https://aac-learning-center.psu.edu/
  - https://aackids.psu.edu
  - https://aacliteracy.psu.edu
  - https://aac.psu.edu
  - https://rerc-aac.psu.edu

Handouts and references are available at https://aac.psu.edu

References


References

- Holyfield, C., Caron, J.G., Drager, K., & Light, J. (2019). Effect of mobile technology featuring visual scene displays and “just-in-time” programming on the frequency, content, and function of communication turns by pre-adolescent and adolescent beginning communicators. International Journal of Speech Language Pathology, 21, 201-211. doi: 10.1080/17549507.2018.144446Communication Displays in Individuals with and without Neurodevelopmental Disorders
References


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