Augmentative and Alternative Communication (AAC) Devices

Rebecca Pikula
SPED 7010-1

Overview of AAC Devices

AAC Devices are a high-tech assistive technology that use pictures, symbols, and text through an electronic or computer based device that supports a student's communication.

The devices also often have a voice output that serves as the student's voice.

Communication Development in Children

Communication requires 2 communication partner to give and receive messages and it typically occurs within a social environment (Dell, 2017).

Children develop communication skills and language through many and powerful interactions with competent communicators in a variety of settings (Dell, 2017).

Making choices provides motivation for children to communicate what they want when they are given a choice (Dell, 2017).

Early communication is important for children to develop more complex skills in communication and language (Dell, 2017)

AAC Devices to Support Early Communication

High-Tech AAC devices teach communication basics through choice making, initiation, and reciprocal interactions in a social environment.

AAC Devices provide a powerful interaction for students because they are able to access what they want in that moment, creating powerful and direct reinforcement for communication. A device can easily be brought to many environments and many pictures can be made of the student's preferred items.

AAC devices can support literacy activities by participating in story reading activities with an AAC device.

Use of an AAC Device Student A

In the next slide, you can observe "Student A" using his AAC device with voice output to request "lotion".

This particular lesson is used as Functional Communication Teaching. Student A has a behavior plan to decrease spitting into the air, spitting into his hands and flicking the saliva into the air for sensory-seeking purposes.

We are teaching him the replacement behavior of requesting and playing with lotion instead of his spit.
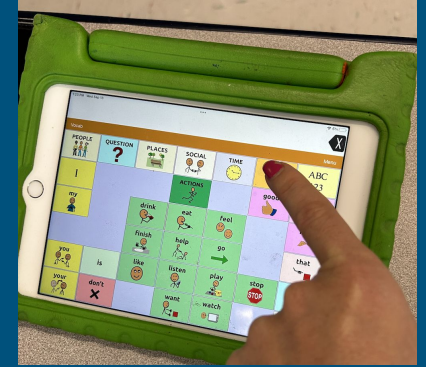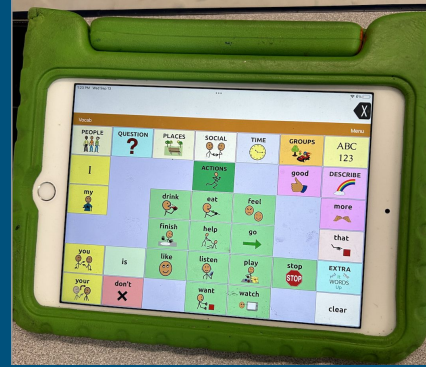
Use of AAC Device to teach functional communication response. Student A

Use of AAC Device to teach functional communication response. Student A

For this student, staff attempt to use and prompt the use of Student A's AAC device throughout the entire day. The student used to have significant aggressive behaviors and the use of AAC devices has significantly increased his ability to communicate his wants and needs and decrease aggression.

Each functional communication lesson consists of prompting and prompt fading as well as immediate reinforcement with the items he requests.

The student has little vocal-verbal communication, so his device is used to teach him communication skills such as cause and effect and choice making.

Use of AAC Device during literacy activities. Student A

Here is an example of using the AAC device during literacy activities. During this particular lesson, the student and the staff member are reading through a favorite book of the student's.

Modeling by a communication partner is used to discuss the pictures so the student can watch the partner navigate through the pages and the device.

In this video, you can observe him spontaneously commenting on the pictures he sees.
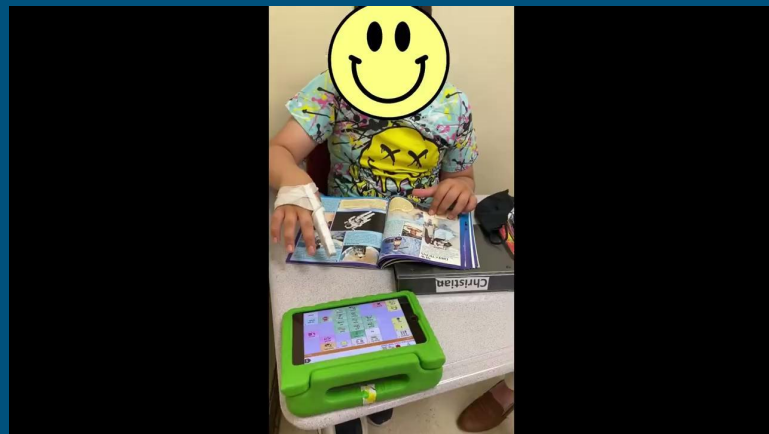
Modifications of PECS for student A

I would suggest changing the voice output to a male voice for a male student to match what the student's voice actually sounds like.

When he initially began using the device, he had very few "pages" and icons on his home page. As student A develops more language skills, more pages with more advanced vocabulary and phrases can be added.

Benefits of High-Tech AAC Devices

- Highly customizable: Educators can personalize the home screen, pages, personal information pages, and student preferences.
- Expanded vocabulary: Educators can program dynamic screens that contain complex vocabulary sets including words and phrases. A student's device can start at requesting basic needs to expanding into advanced conversations.
- Voice Output: When the device audibly reads the messages of the student, this can increase the student's communication partners, they can participate in a whole group conversation/activity, and can empower the student by giving them and actual voice.

Challenges of High-Tech AAC Devices

- Intense initial and ongoing training for staff and families are required for the use of the technology to be most effective.
- The effectiveness and success of an AAC device is dependent on the skill of the educator or communication partner (Cumley, 2009)
- While customization is a benefit of AAC devices, the time to customize words and photos within the device can be time consuming.
- The devices may encounter some technical difficulties including crashing, no battery, and if they break they can be very difficult to replace.

Adjustments to be made

Training and collaboration: Districts and educators can create systems in which teams and families receive initial training on how to utilize device effectively. Teams can also create systems in which there can be communication and collaboration between stakeholders to troubleshoot barriers and give updates.

Train not only educators, but peers to be communication partners with a student using devices to increase communication opportunities. This can create a supportive environment and reduce and stigmas in device usage in inclusive settings.

District-Level Impact

Benefits

- Allows for increased inclusion opportunities for students with disabilities.
  - Students can be included in social opportunities as well as academic by providing a means to instruct and assess expressive and receptive communication. The voice-output of high-tech devices can greatly increase student participation in social and academic group settings.
- Data-Based Decision Making
  - High-tech AAC devices are often able to generate data. This can be used at the district level to assess interventions and training.
- Provides individualized communication instruction.
  - Districts can ensure educators are meeting student's individualized communication needs.
- Potential for time and cost saving
  - While high-tech AAC devices initially be high-cost and time consuming, long term they may need less updating and maintenance than low-tech options.

District-Level Impact

Challenges

- Initial training and ongoing support for educational teams is required to effectively use devices.
    - It may be costly and time-consuming to provide educators with the appropriate professional development.
- Cost and accessibility
    - High-Tech AAC devices can be expensive initially as well as if they require regular maintenance, storage, and charging stations.
- Device evaluation and selection
    - Districts may need to create systems and staffing in which students are assessed in which type of hardware and software are most compatible for their needs.

Ability to serve students

The ability to communicate effectively is critical in being able to access needs, wants, social interactions, and even escape certain situations. For some students High-Tech AAC devices may be the key to express their wants and needs and to access inclusion in classroom activities as well as social interactions. This may lead to more engagement, less challenging behavior, and better outcomes for students.

High-Tech AAC devices are more versatile and adaptable than low-tech options. The dynamic screen displays, voice output, and almost endless potential for vocabulary growth and customization make accessing communication and language for students to be literally at their fingertips.

References

Cumley, G. D. (2009). *Assessing Students' Needs for Assistive Technology (2009)*. Student

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      https://www.wati.org/free-publications/wati-student-information-guide-process-forms

Dell, A., Newton, D., & Petroff, J. (2017). *Assistive Technology in the Classroom:*

    Enhancing the School Experience of Students with Disabilities. Pearson.