

Improving communication for children with ASD using AAC

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1. Introduction

Autism spectrum disorder (ASD) is a complex developmental condition that involves persistent challenges in social interaction, speech and nonverbal communication, and restricted/repetitive behaviors. The effects of ASD and the severity of symptoms are different in each person. Autism differs from person to person in severity and combinations of symptoms. There is a great range of abilities and characteristics of children with autism spectrum disorder — no two children appear or behave the same way. Symptoms can range from mild to severe and often change over time (Frith et al., 2005 ; Lord et al., 2018).

The present article will present an overview of communication tools from low high technologies that can support the person with ASD with the focus on the project Tawasol Symbols (Tawasol Symbols, 2019; Othman et al., 2021) that provide a localized encyclopedia to reduce social interaction and communication problems improve the restricted and repetitive patterns of behaviors, interests, or activities.

2. Low tech AAC

Low tech Augmentative and alternative communication (AAC) system is simple and easy way to create for a person with ASD yet can be an effective communication means. For example, simple communication board can be created by real photos of family members and places the child likes and the board may be ready to use. Some examples of low-tech communication system include object choice board, visual scene display, topic board, activity board, story board, and communication book. If the child understands simple vocabulary and languages, low-tech communication boards might be a good start. Moreover, this low tech can be a backup option when the high tech AAC is not

working and the environment is not suitable for the use of high tech AAC (i.e., swimming pool or playground).

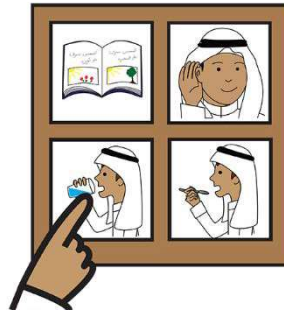


Figure 1. Communication symbols from Tawasol Symbols Project

While the simple communication system does not provide auditory feedback, simple speech generating devices (SGDs) provide voice to an autistic child. Having the voice may offer more motivation to learn the communication system for some children with ASD. They range from devices that speak a single message to devices with multiple cells or message options. Usually, simple SGDs are battery operated and use digitized or recorded speech. They are also simple to program with function to customize messages. This can be a good option if the child is in the language development stage and is learning and recognizing the meaning and sounds of the letters, words or phrases. So the child also can develop language and literacy skills. Some examples of simple SGDs are BIGmack, iTalk, Step-by-Step, QuickTalker, and GoTalk.

3. High tech AAC

High-tech AAC devices with a dynamic display are more sophisticated and are similar to tablet computer with touchscreen, requiring a child's ability to navigate the multiple pages of the screen and produce the corresponded messages. Depending on the child's language, cognitive, physical, and visual ability, the overlay (screen) of the high-tech AAC can be programmed with symbols only, symbols with texts, or only texts, as well as numbers of cells on the screen. Also, the screen can range from very simple displays to extremely complex ones to support the child's ability level from emerging communicator to advance. However, high tech AAC are designated, and specialized devices and the cost of the devices may be one of the considerations for the decision-

making process. Some examples of high tech AAC are Tobii Dynabox I-series, Prentke Romich's Accent series, and Satillo's Nova Chats.



Figure 2. Tawasol AAC App (Source: <https://mip.qa/solution/tawasol-aac-app/>)

One of the localized solutions and supported by Mada Innovation Program is the mobile app “Tawasol AAC App” (Elsheikh et al., 2019). The app gives people with communication difficulties and children with autism spectrum disorder (ASD) the ability to express themselves and build sentences in Arabic through a wide range of symbols. The app allows users to add symbols and vocabulary as they need, making it ideal for a wide range of people with disabilities, including adults such as trauma victims and those who temporarily need a communication tool. This application supports the use of alternative buttons and other access tools for mobile devices, making it easy to use for people with severe physical disabilities to communicate with their family members.

4. Conclusion

As general technology is more accessible to people with disabilities, innovative technologies are available to support the AAC capabilities such as AAC apps on the tablets and computers. This means that those innovative technologies are equipped as AAC devices and can also be used for multi-purposes such as internet navigation, emails, and entertainment. The innovative AAC are cheaper options compared to the specialized high tech AAC as a wide range of apps are available for both free (i.e., GoTalk Now, ChatterBoards AAC, and Bridge Communicate Lite) and affordable such as CoughDrop and LAMP Words for Life.

Although AAC can play a vital role for children with ASD to be effective communicators, having good implementation planning and strategies may directly impact for the success of AAC. Here are some strategies for successful AAC implementation. Firstly, the communication partners should be well trained on how to model of the use of AAC to the child. For example, if you chose the single SGD, start using the SGD to speak with the child. Secondly, once you have shown the child how it works, offer the AAC to the child. So children with ASD have the opportunity to access the same AAC when they are communicating. Thirdly, help the child with appropriate prompts (i.e., physically hand over to the AAC or verbally prompting to use the AAC) when needed. The prompts should be provided consistently (i.e., having the adequate waiting time to respond) and systemically, following the hierarchy of the prompts (physical to visual). Once the child is ok to use it more independently, make sure the prompt is gradually faded out to encourage the child to independently use the AAC. Lastly, once the child masters a word using the AAC, provide and teach new words.

References

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