

Augmentative and Alternative Communication in the Classroom

LITERATURE REVIEW

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By

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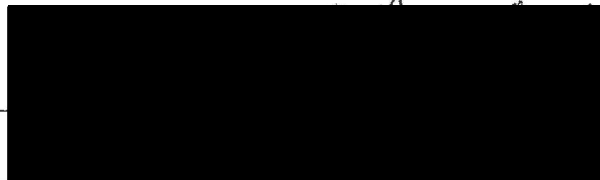
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**Augmentative and Alternative Communication in the Classroom**

**Chapter 1**

Augmentative and Alternative Communication (AAC) systems are aided devices that enable a child to communicate with peers and teachers within a classroom. Such devices range from low-tech picture choices to high-tech computers with voice output. Assistive technology includes a variety of adaptive devices used for assisting a person with a disability to accomplish a task that otherwise would not have been possible. Augmentative communication is just one piece of assistive technology.

**Purpose**

The purpose of this literature review is to evaluate the social development of a child with a disability in an inclusive classroom, who is using a high-tech voice output augmentative communication device.

*Audience*

The information in this literature review will be useful for teachers, therapists who have children that are nonverbal, or kids with communication deficits and need a way to communicate with their peers in their classroom. It will also be beneficial for families to see the importance

of these devices and what opportunities it could bring to their child.

#### **Definitions**

- **Augmentative Communication:** augmenting, or making more effective, a person's communication abilities (ISAAC).
- **Alternative Communication:** providing a person with an alternative, or different, form of communication when speaking, writing, listening, and/or reading is not an option (ISAAC).
- **Speech:** is just one mode of transmitting language.
- **Language:** a socially shared code for representing concepts through the use of arbitrary symbols and rule-governed combinations of those symbols.
- **Communication:** the process that participants use to exchange information, ideas, needs and desires.
- **Inclusive classroom:** students with special needs spend most or all of their time with non-disabled students.

## Chapter 2

### Functional Communication and Social Learning

For young children, the process of developing language is an intimate, social process mediated at first by primary caregivers and later by secondary caregivers and peers. Language may be considered the most important social cognitive skill that children acquire during the preschool years (Kaiser, Hester, & McDuffie, 2001). Research involving children between the ages of three and eight revealed that most caregivers have incorporated one or more of the following prompting strategies: (a) arranging the environment to create communicative opportunities, (b) modeling, (c) verbal, physical, or gestural cues; and (d) time delay (Johnston, McDonnell, & Nelson, 2003). The context for social learning is "embedded" in ecologically widening networks of family, peer system, and community. Successful communication within each of these networks requires that the conversational partners share knowledge, establish joint attention, and understand the intent of the other well enough to negotiate an interaction that is satisfactory to both participants (Kaiser, 2001). Communication is accomplished through a linguistic code and many means of transmission, such as speech, intonation, gestures and body language (Owen 2001). The acquisition of

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effective and efficient speech, language, and communication skills is a significant achievement in early childhood (Johnston, 2003).

The process of communication development in children with developmental disabilities is fundamentally similar to the process of the communication development in typical children; however, it is more variable in timing, formal and functional outcomes, and the need for specific instruction to support the developmental process. The development of communication skills by young children with developmental disabilities is affected by access to developmentally appropriate and supportive social environments that provide ongoing opportunities for learning and communication, as well as the ability of adults and peers within these environments to provide the necessary support for language learning and use required by these children (Kaiser, 2001). Functional limitations can be defined as the gap between a person's ability and the tasks he or she would normally be expected to perform. For children with functional limitations associated with a wide range of disabilities, compromised participation in developmentally appropriate roles can have far reaching consequences for overall development, independence, quality of life, and academic performance. Furthermore, functional

impairment can limit a child's ability to participate in the experiences of childhood. This 'deprivation' can, in turn, have a negative effect on the child's life and the lives of their families (Henderson, Rosenbaum, & Skelton, 2008) .

Almost all children with developmental disabilities can learn increasingly complex communication skills, if the community can provide conditions sufficient to support this learning (Kaiser, Hester, & McDuffie, 2001). One way parents, teachers, and other caregivers can assist children in compensating for these difficulties, is augmentative and alternative communication (AAC). AAC refers to the use of aids or alternative techniques that supplement or replace and individual's vocal or verbal communication skills (Johnston, 2003). The behavior of parents, adult caregivers and peers comprises the critical features of the community support for the development of communication in young children with developmental disabilities. Children with developmental delays who have significant impairments in the use of spoken language may learn to use augmentative and alternative systems for social communication. Nurturing successful language learning for children with specific developmental disabilities may require slightly different interactions. Children who use augmentative or

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alternative communication systems require that caregivers and other conversational partners learn to integrate a different mode of communication with their existing one (Kaiser, 2001). A team approach is optimal when selecting an AAC device. The decision making should be family centered. When family voice is not valued during the decision making process there is potential for abandonment of the AAC in the home and community (Angel, Bailey, Carroll, Parette, & Stoner, 2006). The use of AAC systems during the early stages of communication development does not impede later use of spoken language (Kaiser, 2001). Efforts to teach effective uses of AAC should not imply abandonment of speech and other forms of oral communications, all of which may be incorporated in the overall communication system. Students may be more successful communicating with others when they can have access to multiple methods of communication, and are able to shift from one method to another (Black. & Calculator, 2009).

### **Embedding Technology**

The idea is to embed AAC in naturally occurring activities that necessitate its use. Decisions about what AAC skills to teach should be a team decision (Black, & Calculator, 2009). The family and team participation often includes vocabulary selection, implementation of AAC interventions, and sharing responsibilities for promoting the operational, linguistic, social, and strategic experiences for the AAC user (Angell, 2006). The AAC program should target content students find motivating and reinforcing, increasing their attentiveness, interest, and likelihood of success. Priorities may revolve around AAC skills that they have multiple opportunities and reasons to use functionally throughout the day, including those fostering successful engagement in the general education curriculum and classroom. Functional skills may also have bearing on students' memberships and friendships in and out of school (Black & Calculator, 2009). Teaching functional communication skills using select AAC devices can be an effective way to enhance the communication skills of children with disabilities. The use of select AAC devices can increase their participation in identified activities when (a) the skills are taught within the natural context (b) validated intervention strategies are used, and (c)



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acquisition, maintenance, and generalization are monitored. Using a switch can provide a higher rate, quality, or immediacy of reinforcement to obtain attention (Johnston, 2003). Skilled language intervention and access to developmentally appropriate opportunities to learn and use communication in the community are essential for young children with disabilities (Kaiser et. Al,. 2001).

Embedding intervention opportunities has been defined as " a procedure in which children are given opportunities to practice individual goals and objectives that are included within an activity or event in a manner that expands, modifies, or adapts the activity/event, while remaining meaningful and interesting to the child"

(Johnston, McDonnell, & Nelson, 2003, p. 273). The attainment of best practices is evidenced by successfully including students in general education classrooms where they participate in general education curriculum, as well as other settings outside the classroom where functional skills are required for full participation (Calculator & Black, 2009). The idea of best practice is dependent on effective collaboration between speech therapists, teachers, administrators, parents, and others who share a common vision and over all mission (Calculator & Black, 2009).

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It is important that educators understand why a particular student is in their general education classroom and how the student is expected to benefit from instruction in that setting. Being able to meet individualized and developmentally appropriate needs in general education classrooms requires time to be set aside on a regular basis for collaboration between general and special educators (Black & Calculator, 2009). The responsibility for implementing an AAC program is shared by many, however, its coordination often resides primarily with the Speech Language Pathologist (SLP). This requires the SLP to have the knowledge and the skills to (a) assess needs and abilities of the students using AAC, as well as their communication partners, in a variety of settings, (b) evaluate outcomes of AAC, (c) advocate for a design to increase the students' level of participation and quality of life, (d) provide training to teachers and other team members, and (e) locate funding source (Black, Calculator 2009). Having the special education teacher collaborate with the general education teacher to understand what will be taking place in the classroom each week will support the students' learning. This will allow the special education teacher and speech therapist to prioritize the communication skills that have been targeted for

instruction. Instructional matrices can provide an effective way to organize targeted goals and objectives within the general education curriculum (Calculator, 2009). Goals are listed along the vertical axis of the matrix and the classroom activities are listed along the horizontal axis. The special education teacher and speech therapist identify both the instructional goals and the specific tasks by which goals can be targeted (Calculator, 2009). It is very important to point out that goals such as making choices and requesting of pleasurable activity are not relevant in and of themselves. They only take on meaning to the extent that their demonstration enhances the student's levels of active and meaningful participation in a broader activity (Calculator 2009). The team may elect to rotate goals and objectives throughout the various instructional periods. By doing this they can ensure any particular goal is targeted in a variety of contexts (Calculator 2009).

### **Student Assessment**

It is important to assess AAC progress in relation to students' mastery of specific objectives designated in the general education curriculum as well as students' IEP. Experts in the area of severe disabilities stress the importance of performance-based, in-context assessments.

In doing this, special educators ensure the targeted outcomes are viewed as important by significant others. Special educators can identify AAC outcomes that relate to changes in quality of life as perceived by students, peers, their families, and other important people in their lives. This may include the evidence that improved communication skills are enabling students to have new friendships, and enhanced skills when meeting the communication demands of daily living and greater self-determination. It is important to collect data on a regular basis, preferably in natural settings that offer students multiple opportunities and reasons to use their AAC device. In doing this the special educator is better able to monitor and reassess the students' uses of their AAC systems longitudinally as students' communication needs and abilities change over time (Black & Calculator, 2009).

### **Communicating through Technology**

There are two general types of AAC: Aided AAC and unaided AAC. Aided AAC systems require the use of external devices. Examples of aided AAC systems are communication boards, picture exchange systems, and electronic devices. Unaided AAC, systems require no external devices, just the use of the student's body. Examples of unaided AAC systems are sign language, gestures, finger spelling, cued

speech, and writing words or symbols. There are two types of aided AAC: low tech and high tech. Low tech can be described as AAC equipment that can be simple and inexpensive. They are home-made aids that have no electronics. Low-tech devices with no electronics include alphabet, symbol or picture boards where the user points to the letters, words, symbols or pictures which help to show what the student/child wants to say. Children can point with their finger, a stick, or look specifically at a word or picture with their eyes or move the symbols to a velcro strip.

High tech can be described as electronic aids. High-tech electronic aids are usually computers with extra bits that will speak for the user. These aids have several fancy names like speech generating devices (SGD), voice output communication aids (VOCA), or voice output devices. For the purposes of this literature review, high tech electronic aids will be referred to as speech generating devices (SGD). There are many different types of electronic aids. Some of them take letters and words typed in by the user and speak them out like normal speech. Others show pictures, symbols or words on the display and the user chooses one, or some, of these to be spoken out. Most electronic aids can be operated with touch screens,

joysticks, and/or switches, to allow people with physical impairments to use them. There can be some difficulties with electronic aids, because they can break down, batteries die, cables become disconnected and sometimes they just will not work. It is important for all users of high-tech systems to carry a low-tech system as a backup (ISAAC).

Whether Augmentative or Alternative, aided or unaided, high-tech or low-tech the goals of AAC are the same. The first goal of these systems is to help people communicate more easily and to enable the user to effectively communicate with others and be a contributing member of society (Papp, 1999). An AAC device will support speech and language development along with supporting functional communication. AAC helps children function, learn, and participate in social activities. Finally, learning to use an AAC device enhances communication development (Papp, 1999) .

Communication support should be introduced to a child when there are situations that are too difficult or taxing, frightening, produce tantrums, crying, signs of anxiety, create exit-seeking, cause withdrawal, have many steps, are new or different, and that relate to educational goals and objectives (Halloran & Emerson, 2007). A SGD should be

introduced when (a) the child knows more than they can say and it is unlikely she will pass through stages typically, (b) speech is not adequate to meet communication needs, (c) there is a cognition/expression mismatch, (d) the child is using picture symbols and has too many in use to keep them all straight and, and/or (e) the child's vocabulary is extensive, but not spontaneous, and challenging behaviors become a primary method of communication. It is less about the child's pre-language skills and more about your ability to teach the child (Halloran & Emerson, 2007).

When teaching a child either a low-tech or high-tech device it is extremely important for the adults to also use the devices to assist with modeling. When the educator is going to use a speech generated device with a child it is important to find the smallest button size that they can accurately activate. The smaller the target that the child can hit, the more vocabulary that will be visible on one page. This means that less navigation will have to take place. When learning to use a device, the child needs to be engaged and the activity needs to be motivating. It is important to start in a controlled setting for a short amount of time. Reward miss-hits as babbling and then go on to model the word that they wanted. When using a SGD touch the key words on the device while saying those words

so that the receptive language training and modeling is occurring naturally during the activity. Only introduce a few vocabulary words at a time in a high incentive activity. Once they are established then generalize them immediately. It is important not to forget about all the other communication systems that are available for the child to use in addition to the SGD. Be sure to use the same symbols across settings (Downey, Daugherty, & Daugherty, 2004).

Many people associate AAC with high-end technology and high expense. For some potential users the most ideal AAC systems are low-tech with a small price tag. The key to implementing low-tech options in the classroom is to identify appropriate strategies and to use motivating classroom activities that are rich with communication prospects (Downey, Daugherty, & Daugherty, 2004). The benefit of speech generated communication devices include the fact that they can (a) easily be understood by those who are not familiar with the child, (b) allow the child to communicate with others who are not familiar with the child, and (c) allow the child to communicate with others without first having to gain their attention. In addition, speech generated devices can store messages that are prerecorded to meet the needs of a child across situations



for a variety of speech functions (Dicarlo & Banajee, 2000).

Augmentative and alternative communication can allow students with special needs to fully participate in the classroom and allows for increased independence (Poel, 2007). There is a continued need to provide up-to-date information on the latest devices and the availability of these devices (Deal & Netherton, 2006). According to Poel (2007), thirty years ago there were fewer than 100 devices that were commercially available. Today there are more than 29,000 assistive technology devices for individuals with disabilities.

### **Augmentative and Assistive Communication Aide Social Interactions**

During the first eight years of life, the child's social community moves from being adult-centered to a more challenging peer-centered. It is important for the child and caregivers to interact contingently with one another with communicative intent so a communication foundation is built, resulting in an easier transition to peer social interactions and classroom participation (Kaiser, Hester & McDuffie, 2001). AAC devices change the methods in how interactions will occur and enhance the child and caregiver interactions.

There has been an increase in support for integrating children with disabilities into an inclusive classroom. Success of integration may rely more upon social and communicative skills than on academic achievement (Carter & Maxwell, 1998). AAC devices allow a child to produce clear intentional communication with a peer or teacher. They also allow a child to initiate a social conversation without using a gesture. The student can also gain the attention of a peer or teacher from across the room (Dicarlo & Banajee, 2000). Two advantages of using a computer with voice output are that they lessen the burden on the listener, and they create an opportunity for turn taking in a conversation. Therefore, they reinforce the augmentative communication behavior, which results in frequent and spontaneous interactions (Dicarlo & Banajee, 2000). Professionals are increasingly recognizing the importance of teamwork, integrated services, and collaboration in service delivery, particularly in inclusive settings. The advantages to collaboration include student progress, team members learning from each other, integrated plans, and the general and special educators having equal roles (Calculator 2009). If AAC is to be effectively integrated in inclusive educational programs, it is essential that the persons conducting

direct instruction have sufficient and meaningful access to communication and other support services so that they feel competent in these settings (Calculator, 2009).

### **Conclusion**

Communication is something that begins at birth and continues to get more complex and have greater meaning as a child gets older (Kaiser, Hester, & McDuffie, 2001).

Communication is the sharing of information and ideas which require the joint attention of another person and their understanding of what is trying to be communicated (Kaiser, 2001). Communication is exchanged through many different ways such as speech, gestures, and body language. For children with disabilities learning to communicate with other people can be challenging and it can be affected by not having access to the appropriate social environments or resources that could assist in their engagement with other people (Kaiser, 2001) .

Children with disabilities can learn complex communication skills if they are provided with augmentative and alternative communication (AAC) (Kaiser, Hester, & McDuffie, 2001). AAC is an aid to replace or supplement a child's verbal communication skills. AAC is available in both low tech such as actual objects, and pictures, etc and in high tech such as speech generated devices (SGD). Using

such assistive technology allows a child to communicate his or her needs, wants and to develop social relationship with peers. Use of assistive technology also allows for a child to be a functional part in the classroom community (Black, & Calculator, 2009).

While AAC can be rather complex it is important for parents, teachers and therapists to collaborate and work towards the needs of the child so that they can be better communicative partners (Black, & Calculator, 2009).

Finally, technology is constantly changing and improving.

It is very important that those involved with a child who has communication delays stay current with the latest technology so that the children they work with have the best opportunities available to them (Deal & Netherton, 2006).

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