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A Manual for Using Communication Strategies with Adolescents with Autism

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A MANUAL FOR USING COMMUNICATION STRATEGIES
WITH ADOLESCENTS WITH AUTISM

A Project Report
Presented to
The Graduate Faculty
Central Washington University

In Partial Fulfillment
Of the Requirements for the Degree
Master of Education

By
Gayle J. Anderson
May 22, 2008
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My students, including two autistic male adolescents, whom I have seen develop and make exceptional progress this year, have been a great inspiration to me.
ABSTRACT

Using Communication Strategies with Adolescents with Autism

By

Gayle J. Anderson

May 2008

Many students with autism lack the essential skills necessary to communicate effectively as adolescents and adults. They communicate in a nonproductive manner to get their “wants” or “needs” met. Some of these behaviors include crying, screaming, or having tantrums. Current research reviewed for this project indicates clearly the benefits of applied social skills such as social stories, augmentative strategies such as picture exchange systems, and alternative strategies such as gestures and sign language. These students need to communicate their wants and needs by using socially appropriate adaptive methods of communications. The purpose of the manual at the end of this project is to provide a tool for Individualized Education Program (IEP) teams to assist students with autism to communicate more effectively.
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Introduction

Mulick (2003) declared, “Autism is a complex disability that typically is diagnosed within the first five years of life. Children with autism often have difficulty with verbal and nonverbal communication, social interactions, and may not be affectionate with others” (para. 5).

Dunlap and Fox (1999) stated that children with autism have significant challenges using language to communicate. The classroom environment should provide information on activities and expectations that autistic students can understand. Many autistic students also need support to communicate with others and get their needs met. Sign language, visual systems, or augmentative devices may be needed for expressive communication (Dunlap & Fox, 1999).

Mulick (2003) emphasized that the communication problems of students with autism can vary depending on the social and intellectual development of the individuals. Some students may be able to talk at great length about topics of interest while others may be nonverbal. Most autistic students have little or no problem pronouncing words. However, the words may or may not have concise meaning. Speech deficits are common in children who have autism, according to an American Psychiatric Associations study (as cited in Seltzer, Shattuck, Abbeduto, & Greenberg, 2004). Peeters and Gilberg’s study (as cited in Tincani, 2004) stated that approximately fifty percent of children diagnosed with autism continue to remain mute into adulthood. Harris, Handelman, and
Burton’s study (as cited in Preis, 2006) has indicated that individuals with autism have weaknesses in processing auditory output but strengths in visuo-spatial skills.

Statement of the Problem

To youth who are in middle school and who have autism, communication is an essential life skill. As middle school students with autism continue to grow into adulthood, these skills are necessary for them to function successfully as adults. Some impairments in the area of communication include the inability of the autistic student to fully articulate and then to communicate his/her needs (Bondy & Frost, 2002). What can result if these life concerns are not met? These students with autism will face many challenges such as lacking the social skills needed to live independently and gain jobs. What will happen without intervention? These students will not have the life skills necessary for them to interact with their community or to get jobs.

Without improved communication, these students with autism may face difficulties in the area of life skills including social interactions such as greeting others, developing friendships, and sharing interests with others in a reciprocal manner, says an American Psychiatric Association study (as cited in Seltzer, et al., 2004). Communication skills are also needed when transitioning into adulthood and in gaining a job. Kobayashi, Murata, and Yoshinaga’s study (as cited in Seltzer, et al. 2004) conducted an investigation of autistic individuals aged 18 to 33 in Japan. About one fifth were employed, but most were in service industries with low pay. Sixteen percent of them worked in a sheltered setting. Howlin, Mawhood, and Rutter’s study (as cited in Krauss,
Shattuck, Osmond, Swe, & Lord, 2003) examined nineteen adults with autism. They determined that approximately three fourths of the adults with autism lacked independence in daily living skills. Very few of the adults with autism developed friendships or held competitive jobs.

**Purpose of the Project**

The purpose of this project was to design a manual to assist Individualized Education Program (IEP) teams to effectively meet the communication needs of students with autism. The project was developed with input from John McDonald, a special education expert, Jennifer Davis, a facilitator in special education for the Highline School District, and Sandhya Chinnapa, a Speech Language Pathologist in the Highline School District where I formerly worked as a special education teacher. This manual may be used by educators working with adolescent students who have autism. Communication skills necessary to help students having autism become functional members of society will be discussed, and suggested interventions to increase communication will be provided.

**Limitations of the Project**

This project has the following limitations:

1. This communication manual on autism was designed for use with adolescents in middle school. It may not be effective with younger or older students.

2. Students with autism have varying degrees of ability, and all of the activities in this manual may not be appropriate for every student. Some activities may need to be adapted to higher or lower levels.
Definition of Terms

*Augmentative Devices:* Tools that help individuals with absent or limited speech to communicate, such as pictographs (symbols that look like the things they represent), or ideographs (symbols representing ideas) (Berke, n.d., para. 1).

*Autism:* A spectrum of neuropsychiatric disorders characterized by deficits in social interaction and communication, and repetitive and unusual behavior. Some people with autism lack verbal skills (Definition of Autism, n.d., para. 1).

*Autism Spectrum Disorder* refers to a range of neurological disorders that most markedly involve some degree of difficulty with communication and interpersonal relationships, as well as obsessions and repetitive behaviors. As the term “spectrum” indicates, there can be a wide range of effects (Mauro, n.d., para. 1).

*Echolalia* is the immediate repetition of words, phrases or sentences just spoken by others (Read & Purse, 2006).

*Sheltered:* The word sheltered describes supported employment where autistic students have an adult who checks on them periodically to provide guidance and assistance if needed (Seltzer, Shattuck, Abbeduto, & Greenberg, 2004).
Sign Language: Any means of communication through bodily movements, especially of the hands and arms, rather than through speech and is widely used by the deaf (Sign Language, n.d., par. 1).
CHAPTER II

A REVIEW OF LITERATURE

The Need for an Autism Manual

Autism is a severely debilitating developmental disorder which includes symptoms such as aberrant social skills, language difficulties, and abnormal attention deficits and consists of repetitive behavior. For example, the student may repeat words that he/she hears without processing the meaning of the words. A student may prefer a CD player to a classmate. It is also frequently associated with mental retardation (McGovern & Sigman, 2005). About 70 percent of individuals with autism will be diagnosed with mental retardation (Hancock & Kaiser, 2002). One of the social components includes a preference for objects over people. The social relationships of people depend on affective and attentional interactions (McGovern & Sigman, 2005).

Dunlap and Fox (1999) emphasized that students with autism have significant challenges in understanding and using communication. While most students with autism will learn to communicate by using speech, many still have problems expressing their desires and needs appropriately. An example of a desire would be using the computer or listening to music. A need would be using the bathroom or eating. They may need to use sign language, visual systems, or augmentative devices as additional forms of expressive communication.

A number of studies have examined the capacity of older students to identify the emotions of others from photographs, drawings, and video taped depictions. Autistic students were less likely to identify the emotions of others than regular students (Ceponiene et al., 2003). Older autistic students do not respond to others’ emotions the
same way as normal students and even mentally retarded individuals (Sigman, Kasari, Kwon, & Yirmiya, 1992).

Students with autism spectrum disorder often have difficulty with social conversations, using and understanding gestures, body language, and facial expressions. Using social conventions is hard as well such as saying “please” or “thank you” at the appropriate times and taking turns. They often lack skills in understanding and responding to the social cues of others which can lead to misperceptions about social situations (Bergeson, 2003). For example, a student with autism may not know that a frown means displeasure or that a smile means approval.

Impairments in social interaction and communication skills can lead adolescents and young adults with severe autism to engage in high frequency behaviors that can lead to self-injury (Polinstock, Dana, Buono, Mongelli, & Trubia, 2003). Some autistic individuals may also feel anxious and irritable, which can lead to social impairments (Towbin, Pradella, Gorrindo, Pine, & Leibenluft, 2005). Depending on their stress level or level of frustration, they may be aggressive toward staff working with them (Polinstock, et al., 2003). Mancil (2006) stated that autistic individuals may use temper tantrums or screaming in an attempt to get their needs met or to request a desired item. Students with mild to moderate disabilities often lack social skills that are important for peer relationships, including appreciation of social cues and sharing their enjoyment or achievements with other people (Pierson & Glaeser, 2005).

Frith and Happe (1994) emphasize that another area of communication need is echolalia, which involves autistic students parroting what others say or changing the words slightly. There may be a pronoun reversal and an example would be “Do you want
a biscuit?” which actually means “I want a biscuit?” The meaning of what the student is trying to communicate could be misinterpreted, especially by someone who does not know the student (Frith & Happe, 1994).

According to the combined works of Bondy and Frost, (2002), Sundberg and Partington’s study (as cited in Tincani, 2004), and Wigram and Gold, (2006), there were several components necessary for the development of an autism manual on communication strategies:

1. Social skills in autistic middle school youth.
2. Augmentative communication strategies in middle school youth.
3. Alternative communication strategies in middle school youth.

Social Skills

For many children with autism spectrum disorders, the development of social relationships may be difficult because of the nature of the disability, and friendships may be slow and difficult for students with autism to establish (Boutot, 2007). Atwood and Gray’s study (as cited in Pierson & Glaeser, 2005) states that students with autism often lack social skills necessary for peer relationships. Children with autism spectrum disorder may have difficulty with understanding social cues including initiating, sustaining, or ending a behavior or conversation with peers of the same age. Finally, communication with peers may be further challenged due to limited speech of some students with autism. In order for them to develop friendships like those of their nondisabled peers, autistic individuals need to be provided with opportunities to establish social relationships in the home and the community (Boutot, 2007).
Scattone, Tingstrom and Wilczynski (2006) have emphasized that the use of social stories has improved relationships with peers, and noted when a peer read a story to an autistic student, many problem behaviors including crying, screaming, or aggression decreased.

Thiemann and Goldstein (2001) used social stories with pictorial cues and verbal prompts. They subsequently observed some positive results in appropriate social interactions. Social stories consist of short stories that may help to increase the social interactions of students with autism as well as to decrease aggressive behaviors such as grabbing toys, crying, screaming, and inappropriate table manners. An example would be telling a student a story about table manners, which would model the desired behavior (Scattone, Tingstrom, & Wilczynski, 2006).

Another social skills strategy utilizes the use of comic strip conversations (Pierson & Glaeser, 2005). A comic strip conversation is similar to a social story, but is constructed around pictures instead of text. The purpose is to review a social situation and discuss alternatives. In one study, comic strips were introduced to help decrease the tantrum behaviors of a student. The student enjoyed using the comic strip to communicate, and by the sixth week tantrums were reduced by 80 percent. Overall, when comic strips were used, there were major improvements shown in the autistic students with mild to moderate disabilities.

Goldstein, Kazmarek, Pennington, and Shafer’s study (as cited in Thiemann & Goldstein, 2004) has shown that behavior and social skills interventions by peers can increase cooperation of autistic students. Kamp’s study (as cited in Thiemann & Goldstein, 2004) stated that non-disabled same-age peers who participated with autism
spectrum disorder students had a higher degree of acceptance of these children. The use of verbal scripts by peers with the autistic students helped to improve the autistic students' communication skills. As a result, the peer-mediation strategy positively influenced the social behavior of the students with autism.

Thiemann and Goldstein (2004) have also looked at the impact of peer training and systematic instruction using written text on communication skills. The peers without social delays were taught to use facilitative social skills including “start talking, keep talking, compliment, look, wait, listen, and answer questions.” The students also learned to take turns and engage in longer conversations by the end of the treatment.

Another social skill strategy is video modeling. Video modeling increases desired behavior by representing the behavior from a video. The autistic individual watches a video demonstration and then imitates the behavior from the video (Bellini & Akullian, 2007). Video modeling has been used with adolescent students to increase “pretend play” skills. A study was conducted with a participant and his non-autistic sibling. They were given a verbal direction to “Watch TV” and were shown a video model showing one of four pretend play scenarios. Next they were told to “Go play.” The two playmates were successfully able to replicate the scenarios shown on the video. The results indicated that during the last follow up session when the instruction was given to “Go play,” the participant and his trained sibling followed direction with no prompts or video models (Reagon, Higbe, & Endicott, 2006). Taylor’s study (as cited in Reagon et al., 2006) stated that siblings of autistic individuals can be taught to serve as conversation partners and video models to participate and help their autistic sibling generalize his/her skills to his/her specific home situations. The use of video modeling also helped to
promote positive feelings and outcomes for the sibling and his/her family. Furthermore, the video modeling procedure was effective in helping the autistic individual use scripted or unscripted statements or play activities with a sibling. Bellini and Akullian (2007) stated that video modeling allows the student to imitate the desired behavior by watching himself or herself performing the behavior.

The results have shown that video modeling has had beneficial outcomes for students with autism. Alcantra’s study (as cited in Bellini & Akullian, 2007) stated that video modeling leads to the generalized improvement of grocery-purchasing skills. Autistic students were given training on purchasing skills before watching a video about grocery shopping. Videos which depicted pictures of adults modeling and verbalizing purchasing of grocery items in a grocery store were shown to autistic students. The students were asked questions while they watched the video such as “What store is this?” or “What is he doing?” The autistic students were able to generalize these skills in community settings. In a separate setting, Mechling’s study (as cited in Bellian & Akullian, 2007) discussed another investigation using video modeling. Researchers measured verbal and motor responses by three adolescent autistic students using purchasing skills at three fast food restaurants when using an interactive computer program. They were given positive reinforcement for completing the tasks. Following use of the computer program, the students went to actual fast food restaurants to make purchases. They demonstrated the motor and communication skills learned in the classroom and successfully applied them to a real-world setting.
Functional Communication Training

Teachers or other staff working with students with autism can use communication strategies that help decrease inappropriate behaviors. Functional Communication Training, otherwise known as FCT, can also be used by manipulating consequences, tangible items, and attention spans. This helps teachers to learn the outcome or function of the behaviors (Mancil, 2006).

Once they know the function of a behavior, they can target that aberrant behavior with a replacement behavior. The following methods are among those used: picture communication, verbal language, gestures, or assistive technological devices. The response to be used by an instructor with the students with autism depends on the students' individual needs and capabilities (Mancil, 2006). Research shows a connection between communication skills and aberrant behavior. An example would be a student who does not know how to ask for help with tying his/her shoes. That student may instead throw the shoe across the room. Students with autism can also be taught to give a picture of a desired item to the staff member instead of engaging in a tantrum or screaming. Another example would be an instructor ignoring a tantrum while prompting the student to request a break (Mancil, 2006). Browne (2006) emphasizes the importance of the instructor not responding or using as few words as possible when a student is having a tantrum. Another strategy for the instructor to help an autistic student who is distressed is to avoid using the word “no”. An alternative would be to tell the student what to do. An example would be “Put your fork and spoon down, please” instead of “Stop pounding your fork and spoon on the table” (Browne, 2006).
Augmentative Communication Strategies

Hogdon's study (as cited in MacDonald & Stevenson, 2000) stated that in order to develop communication skills for students with autism, augmentative communication systems such as visual aids are needed. Teachers should choose words, signs, or pictures so that students exert control over their environment to get their needs and wants met and cause a strong social response in others. The goal is to help students with autism participate in the world around them and to replace maladaptive behaviors with appropriate communication.

Siegal and Yamall's study (as cited in Charlop-Christy, Carpenter, Le, LeBlanc, & Kellet, 2002, and Bondy & Frost, 2002) emphasized that the picture exchange communication system is an augmentative system frequently used with children who have autism. It has gained increased use by special education staff nationally and internationally. The picture exchange system (otherwise known as PECS) uses functional communicative responses that encourage meaningful interactions between the autistic child and the environment. Augmentative communication strategies have major benefits in the development of language skills and competence in communication skills. The best evidence presently shows data that autistic individuals demonstrate an increase in speech production (Millar, Light, & Schlosser, 2006).

Languages

Augmentative Input

Augmentative language input uses visual-graphic symbols that can be text based, picture based, or a combination of both. Visual-graphic symbols have aided students with self-management skills and in transitioning from one activity to the next (Cafiero,
An example would be an instructor finishing a discussion on grocery shopping skills, which is a structured activity, and putting coats on to go to the grocery store, which is an unstructured activity. When an instructor is working with an autistic student, it is vital to monitor the student closely for receptive communication. Simple one or two step directions should be used with words that the student understands. The teacher should also speak slowly and use gestures. The student should be assured adequate processing time (Bergeson, 2003).

Augmentative Output

The student is taught to exchange a visual symbol for an item that he or she desires. The picture exchange system has shown improvements in communication for students with autism and will be discussed further in the next section. Increases in speech development have been seen by special education staff, in addition to improvements in behavior. One strategy consists of teaching a student to point to a visual symbol to request a break, desired activity, or assistance (Cafiero, 2001). It helps the students get their wants and needs met, which makes their environment more predictable and comfortable.

Aided Language Simulation

Aided language simulation uses contextually relevant reinforcers in the activities of the natural language paradigm and picture communication symbols. It can be used when the adult is reading the story to a student with autism by creating picture language boards that follow the story text, and vocabulary should be included for interactions between the adult and the child.
The adult or speaking partner touches symbols as he/she speaks to the non-speaking autistic student (as cited in Cafiero, 2001). For example, during a grocery shopping lesson, a teacher might discuss the word/picture ice cream. Next, the student would be given a picture of ice cream for him/her to find in the classroom, and the teacher would tell the student to point to the picture/word on the language board.

Natural Aided Language Simulation

Natural aided language simulation involves the use of interactive visual systems in real environments. Cafiero (2001) did a study with an adolescent consisting of picture symbol boards being used within a student’s mainstream environment and between school and home. Communication from staff was verbal language augmented by pointing to words on a communication board. The results were positive and the subject in the study showed the student’s ability to process multiple symbols in his environment.

Picture Exchange System (PECS)

The picture exchange system incorporates functional communication skills that promote meaningful interactions between the student with autism and the environment. Bondy et al., (2002) stated that using the picture exchange system involves instructing students to give a single picture that corresponds to what they desire to the staff member. Bondy and Frost’s study (as cited in Preis, 2006) showed an example of a PECS system involving the use of a communication board or binder. Sentence strips are attached to the binder or communication board by using velcro with the words “I want…”, “I see…”, or yes/no cards and pictures of the preferred item. If the student with autism imitates the correct word or words he/she gets a reward of the item he/she has selected.
A recent study has shown effective results with three students with autism and has supported the use of PECS. The findings showed that there was an increase in the emergence of speech, improvements in social-communication skills, and a decrease in behavior problems (Charlop-Christy, Carpenter, Le, LeBlanc, & Kellet, 2002). Ganz and Simpson’s study (as cited in Preis, 2006) has found that the use of PECS has improved speech production in its amount and complexity in autistic students. Brady’s study (as cited in Preis, 2006) emphasized that students with autism were more successful in following a verbal direction in the added presence of pictures than when shown no visual supports. The use of PECS teaches students to exchange picture symbols. Many individuals with autism go on to acquire speech as a result. Browne (2006) stated that using the PECS system helps to increase the communication skills of students with autism by teaching them to initiate communication instead of just answering questions.

The PECS system is broken down into six phases of acquiring language. Phase one is silent and nonverbal. Students are taught to exchange pictures for desired objects, and a variety of objects, activities, and treats are used. During this step, the students are not taught to discriminate between different pictures. The goal is just to be able to exchange pictures for objects (Citrus Health network, 2007). Two adults are needed when working with the student during this phase. One adult should try to entice the student with a reward that he/she really likes. The second adult stays behind the student and waits for the student to reach for the object. Then the second adult assists the child to find the picture of that object and give it to the first adult (Wallin, 2004).

The second phase of PECS focuses on the student initiating the act of exchanging pictures for matching objects. A communication board is shown to the
student. The student is taught to remove pictures from the communication board and give them to the teacher to gain his/her desired activity or object. During this phase, the student is taught to generalize the skills he/she has acquired to different settings such as the park, different rooms, or the store (Wallin, 2004).

When students learn that skill, they are ready for stage three, which teaches students to discriminate amongst pictures. The student is presented with an object he/she does not desire and one that he/she does. The student receives the pictured object shown to the teacher, whether that was the correct choice of his/her desired object or not. Words are also introduced in this phase. An example follows. If the student gives the teacher a picture of crayons, the teacher says “You want crayons?” while handing him/her the crayons – even if the student wanted pencils (Citrus Health Network, 2007).

Phase four includes teaching sentence structure, and the first sentence taught is “I want” because it motivates the student to gain the desired activity. By using no spoken words, children are prompted to put a picture of an object they want at the end of a sentence strip. During the last step, the student exchanges the sentence strip for the object he/she wants (Autism, 2006).

During phase five, the phrase “What do you want?” is added to the picture exchange. The teacher asks the student what he/she wants and directs him/her to the communication board. When the student with autism demonstrates success at indicating the particular item he/she wants at the time he/she is asked, he/she is ready for phase six (Autism, et. al).

When students are introduced to phase six, they are taught different verbal phrases. An example might be “I like toys.” Emotions are discussed, and students are
encouraged to tell about their feelings as well. The instructor’s use of PECS can be very instrumental in helping students transition to different activities and to handle changes in their routines. Visual schedules are made by the instructor putting pictures of the day’s activities on a wall area or communication board. Children are instructed by the instructor to check their schedules to know what will happen next in their daily routine (Autism, 2006).

The TEACCH Model

The Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH) model has been beneficial for helping students with autism communicate (Blubaugh & Kohlman, 2006). Some components of the TEACCH approach follow. The areas of the classroom need to be physically arranged so that autistic students can use visual cues to understand expectations. Daily visual schedules should also be used and should be individualized based on the needs of the student. A schedule of work and play shows the autistic student what activity comes next and teaches him/her independence. The teacher should say “first work, then play.” Each activity positively reinforces the student. A transition area is where schedules are displayed. Each student replaces a symbol from an activity completed with one for the next activity. This helps to make a smooth transition from one activity to the next. All the activities are structured, and some of the activities may include meal times, outdoor activities, or personal care. The activities are set up from left to the right. The student takes a work activity from the left, performs the task, and places it in the finish box on the right. Visual prompts such as photos are used in order to increase his/her success in the daily activities. An example of a visual prompt would be photos of clothes inside a
student’s wardrobe (Siaperas & Beadls-Brown, 2006). Gryzwacz and Lombardo’s study (as cited in Choutka, Doloughty, & Zirkel, 2004) is comprised of planned transitions, supportive teaching arrangements, and predictable routines. Blubaugh and Kohlman (2006) have emphasized that the TEACCH model is individualized to meet the needs of each autistic student depending on his/her skills, needs, and interests.

The goal is to teach the autistic individuals that situations have meaning and are predictable. Routines in daily living help students to get their needs met. Another purpose of the TEACCH model is that the skills will continue into adult life. By following a visual schedule, students can learn important independent skills that can help them become successful as adults. Students can be taught self-help skills, such as dressing and undressing, that will be needed for them to be successful as adults. An example in physical education could be telling a student to “throw’ a ball. The teacher would ask the student to repeat the word, or at least try to repeat the word if he/she is nonverbal. Panerai’s study (as cited in Siaperas, Panagiotis, & Beadle-Brown, 2006) of the effectiveness of the TEACCH program with adolescents and adults was done in Greece. A significant enhancement of communication, socialization skills, and daily living skills was shown in an eighteen month period. The autistic students were taught to replace maladaptive behaviors with appropriate communication.

Alternative Communication Strategies

Assistive Technology Devices: Mechanical Hand Support

Mechanical hand supports, devices that physically hold the student’s hand up, have been found marginally useful for facilitating communication skills. They have been found to be helpful for assisting the disabled speaking autistic individual to type words on
a keyboard or letter board. Studies have been conducted on the effectiveness of this strategy. In the area of independent pointing and typing, most of the individuals needed assistance in pointing to letters, pictures, and numbers. Three out of six subjects from one study were able to use the hand-support system well enough to point to pictures. None of the six individuals, however, were able to copy words or point to letters reliably with the mechanical hand-support system. The results showed that the mechanical device did not help non-speaking autistic individuals to communicate through writing (Edelson, Rimland, Berger, & Billings, 1998).

Assistive Technology Devices: Synthetic Speech Output

Voice output communication aids use a computer voice which speaks to the student, and have helped to increase speech output. A “speak and spell” device was used as part of a multi-sensory approach. It has been successful at teaching spelling to students with autism. When synthetic speech output was used by itself, it provided better results than when used with orthographic feedback. The evidence suggests that when using a synthetic speech output system, some students with autism rely mainly on visual stimuli such as manual signs (Schlosser, Blischak, Belfiore, Bartley, & Barnett, 1998).

Sign Language/Gestures

Sign language involves using the hands to form signs to request items of preference. Manual sign output happens when the student with autism uses manual signs to communicate with others. One advantage to using manual signs is that there are no external devices needed. The disadvantage to using sign language is that most other students and adults do not understand sign language. Factors to be used to determine whether or not to use sign language include the student’s level of motor skills, and how
quickly he or she can learn manual signs compared with other methods of communicating (Bondy & Frost, 2002). A comparison between sign language and the PECS system showed that learners with good hand-motor imitation skills learned manual signs more quickly and had increased vocalizations, but learners that had weaker motor skills learned better with the PECS system and increased speech resulted only with modifications (Tincani, 2004).

Manual signs can be used for both understanding and expressing communication (Bondy & Frost, 2002). In sign language training, children may be taught to participate in a conversation, request preferred items, and emit verbal behavior under the control of various stimulus conditions (Tincani, 2004). Children with autism are also likely to increase communication skills when using gestures. Gestures can be used to communicate wants or needs. They may entail waving, nodding, or playing a social game (Bondy & Frost, 2002).

Sundberg and Partington (1998) (cited in Tincani, 2004) stated that when teaching sign language, the simplest sign that demonstrates the meaning should be taught and when possible, the instructor should use iconic signs that resemble the item such as forming the hand like a “slinky”. When introducing signs, it is also important to teach signs that don’t resemble each other to avoid confusion.

Sign language training requires two teachers. One adult sits behind the student to deliver the prompts, for example, “cookie.” The second adult demonstrates the sign such as “cookie” and simultaneously vocalizes the word “cookie”. Gestures have also been used to improve communication skills. Adults should model gestures by first using a gesture such as pointing with verbal directions and later using the gesture of pointing
without the verbal directive. Gestures can be used to communicate social messages such as “hi”, “bye” or “high five”. The gestures can also be used to communicate by pointing to an item to request it. Autistic students may also benefit by learning to use gestures in playful interactions. An example would be teaching them the “Row, row, row, your boat” chant. After practicing the chant several times, pauses can be used by the instructor after a few lines, which may encourage to ask for “more” by using vocalizations and body language. Students can be taught gestures by first making sure they can imitate hand and head body actions. If the individual does not have this skill of imitation, it needs to be taught first. The student may need physical assistance by the instructor to learn the required motions (Bondy & Frost, 2002). When teaching gestures, it is important for the instructor to provide situations that seem worthwhile to the individual and to teach the gestures in real life situations. An example would be a parent walking in to the classroom and waving to his/her son/daughter. The student would be taught to wave back. The skill of waving to his/her parent should be taught by the instructor whether the parent waves first or not. Physical prompts should start out with an instructor putting his/her hand over the student’s hand, but should gradually be decreased in strength over a period of time (Bondy & Frost, 2002).

Students should also be taught to understand the gestures of others. One important gesture is that of pointing to something. Most often, we want the student to look at what we are pointing to and possibly retrieve the item as well. An example would be “Get that.” Pointing is usually accompanied with verbal directions to help to clarify the message. When teaching gestures, it is crucial that the gesture be important to the student (Bondy & Frost, 2002). Gestures that are motivating such as those which help
the student achieve a desired reward and gestures that help them get their wants or needs met are important to the student as well. (Bondy & Frost, 2002). An example would be a student working on an art project and needing glue. The teacher would point to the glue container.

Another example of using gestures would be to place something in a particular location by using pointing. The teacher would say “Put it there.” Gestures can also involve social situations such as clapping at the appropriate times or giving a “high five” to show approval. If a student enjoys doing puzzles, and likes to get puzzle pieces together to complete a task, then a student can be taught to connect particular gestures to this task (and similar tasks). The teacher would first put all the puzzle pieces except for just a few in a box. When the student looks for his/her next puzzle piece, the teacher would point to the box and tap it. Then she would take a puzzle piece out of the box. The teacher would gradually increase the delay between tapping and pointing, and the student would gradually learn to respond to pointing as the signal instead of the tapping of the puzzle box. This activity would be beneficial for any activity that is motivating for the student and can also be used to teach other kinds of gestures as well (Bondy & Frost, 2002).

Summary

Incorporating social skills strategies into the development of school programs for adolescents with autism has been cited by many experts as a necessary component. Many students with autism have difficulty understanding others’ cues and subsequently beginning and ending a conversation. The use of social skills instruction has helped in facilitating positive interpersonal relationships as well as decreasing behavioral problems.
Another communication strategy is *augmentative communication*. Augmentative strategies use *visual symbols* to help students with autism communicate. One augmentative strategy is the use of the picture exchange system, which uses functional communicative responses. Students are encouraged to participate in their surrounding environment and to replace inappropriate behaviors with appropriate behaviors. One final communication strategy to consider involves the use of alternative communicative strategies such as the use of sign language/gestures and technology devices. The use of gestures/sign language has been mentioned as helping students get their wants or needs met by the student requesting items of preference.
CHAPTER III
PROCEDURES

The purpose of this project was to develop a manual that focuses on communication strategies for IEP teams to use with adolescents with autism. This goal was accomplished by conducting research into recent studies and analyzing the findings. This manual was completed by the author, who conducted research into recent studies and analyzed the findings.

Adolescents with autism may have been previously labeled as too developmentally impaired to be helped. Currently, many caregivers may be afraid of an adolescent and may feel a lack of control because of the adolescent's size when he/she throws a tantrum. Finding ways to help the student with autism to enjoy social interactions with others or to solve problems needs to be done. This can enhance the autistic student's quality of life significantly (Greenspan & Wieder, 2006). Raising the social sensitivities of any impaired individual qualifies as a highly desirable goal because it helps the students learn to function as members of society.

Procedures

The writer used the following procedures to develop a manual on communication strategies for IEP teams to use for adolescents with autism. A review of articles and books was completed during the development of this project. Information was gathered from the Internet, as well as the Proquest and Eric Data Bases. Much information was also gained from the author's teaching experiences with special education staff and students in the Highline School District. The author's two adolescent students who have
autism with retardation have provided an opportunity for the author to use her research in an experimental manner.

Implementation

This manual for adolescents with autism is divided into three sections on communication-enhancing strategies to use with adolescents who have autism. They consist of social skills, augmentative strategies, and alternative strategies. This manual was developed to be used by special education teams including the special education teacher, psychologist, and speech language pathologist or others involved in the autistic student's education in school districts to meet the autistic student's needs. The author will introduce this manual to special education teams in Everett School District in September of this calendar year with an overview of the different communication strategies. Starting in October, one strategy will be introduced each month. After introducing each topic, time will be provided for members of the team to read the material and ask questions. Following each meeting, the members of each team will have the opportunity to apply what they have learned with the students they teach. At the following monthly meeting, the team members will have a chance to share their experiences and ask questions. Monthly meetings will continue to be held with the special education team, and one strategy at a time will be discussed until the discussion of the manual is completed. Feedback will be done in three to four months, and the success of the training will be evaluated.
Rationale for the Project

Kraijer (1997) stated “Although autism in mental retardation has received some attention since the Sixties, albeit only incidental in the early years, I think that almost everywhere in the world knowledge and understanding of the size, nature and gravity of the problems concerning the group of individuals with autism and related disorders is still highly inadequate” (p. 21).
CHAPTER IV
THE PROJECT

The purpose of this project was to develop a manual of communication strategies for IEP teams to use with adolescents with autism. Communication skills were discussed in three areas. It is largely but not exclusively based upon a review of relevant autism literature from the past ten years. Subsequent analysis assisted in the creation of a rough outline based upon the three communication areas: social skills, augmentative strategies, and alternative strategies; and finally incorporation of personal experiences working with autistic students and the perspectives of other teachers of students with autism into a refined outline as a starting point for the manual. The focus will be on finding some ways to help these adolescents to be successful at communicating into adulthood. An IEP team would use this when developing an instructional strategy for teaching effective communication skills to a student with autism.
Manual for Using Communication Strategies with Adolescents with Autism

Developed by,

Gayle Anderson (Special Education Instructor, Everett School District)

May 22, 2008
Introduction

Many students with autism lack the essential skills necessary to communicate effectively as adolescents and adults. They are communicating in a nonproductive manner to get their “wants or “needs” met. Some of these behaviors include crying, screaming, or having tantrums. Current research reviewed for this project indicates clearly the benefits of applied social stories, augmentative strategies such as picture exchange systems, and alternative strategies such as gestures and sign language. These students need to communicate their “wants and “needs” by using socially appropriate adaptive methods of communications. The purpose of the manual at the end of this project is to provide a tool for IEP teams to use to assist students with autism to communicate more effectively.

This manual is divided into three areas. These areas are social skills, augmentative communication, and alternative communication. I chose these areas because my research indicates that students with autism have difficulty with social skills such as greeting others and developing friendships that may continue into adulthood. They also lack the social skills needed for peer relationships. Social skills help promote interpersonal relationships and decrease problem behaviors. Augmentative communication uses visual symbols to help students with autism communicate. The use of
augmentative communication strategies increases speech production for students with autism. Alternative communication includes gestures and sign language and helps students get their wants and needs met.

This manual will provide you with the tools to help you better meet the needs of your students with autism. You are encouraged to try these strategies with your students, and I hope you enjoy using them as much as I have with my students with autism.
Social skills help to promote interpersonal relationships and appreciation for the social cues of others. Social skills also help to decrease problem behaviors by teaching the students alternatives in a social situation. The following section will provide activities teachers can use to help their students learn social skills.
Quick Facts:

Social Stories are short stories about social situations which reduce anxiety, increase acceptance by general education groups, and improve social interactions of students with autism. They also decrease aggressive behaviors such as grabbing toys, screaming, and inappropriate social interactions (Pierson & Glaeser, 2005, & Scattone, Tingstrom, & Wilczynski, 2006).
Tips:

Choose a story or create one about a situation that personally relates to the student’s individual social needs.

Select a quiet area free from distractions.

Read a story once a day before a free time activity.

Either the teacher or the student can read the story.
SOCIAL STORIES SAMPLE LESSON

**Steps to Follow:** Teaching Social Stories to Students with Autism

**Materials:** A social story that relates to the student’s individual needs during an unstructured activity

Depending on the length of the story, two to three comprehension questions about the story are written on a separate sheet of paper.

**Working with the Student:**

Sit next to the student and slightly behind him/her.

Sit away from the other students to decrease distractions.

If the student doesn’t answer all the questions correctly, reread the story a second time and go over the questions with the student.

Review the story each day of the week until the student answers the comprehension questions with 100% accuracy.

An example of a social skills story to read prior to an unstructured activity follows on the next page.

This lesson would be used prior to riding a city bus or other unstructured situation.
SOMEBODY CROWDS ME ON THE BUS

Sometimes people crowd me on the bus.

Oh well. They are not trying to hurt me.

They might say, "Excuse me" or "I’m sorry."

If they don’t, that is okay too.

I will try to say, "Excuse me."
VIDEO MODELING

**Quick Fact:**

Video Modeling increases desired behavior of the student with autism by repeating the student’s behavior on a video that the student can watch.

**Purpose:**

Video Modeling allows the student to imitate the desired behavior by watching himself or herself performing the behavior on the video.

Video Modeling is used to assist students with autism to increase spontaneous verbal requests.

**Materials:** Blank video and video recorder, an adult to tape the session, an adult or peer to work with the student, several play items that relate to the student’s interests
**Working with the Student:**

Videotape a structured play session between the student with autism and the peer or adult.

The peer or adult prompts the student to make a request for a play item such as “I want ____”.

Next, edit the video by removing all adult prompts so that the student with autism only watches himself or herself performing the skills.

The student with autism watches himself/herself respond independently and spontaneously.

The final step is to prompt the student to request a play item without using the video. As the student starts to be successful, gradually decrease prompts to promote independence.
VIDEO MODELING SAMPLE LESSON

Generalization of Grocery Shopping Skills:

Steps to Follow: Example: Grocery Shopping

Materials: Show the video of adults modeling and verbalizing purchasing grocery items in a grocery store. One video that I found particularly helpful is "Smart Shopping."

Working with the Student: The students should sit in a semi-circle facing the video of grocery skills.

Ask questions of the students while they watch the video.

- What store is this?

- What is he/she doing?

-Ask questions about the video. An example follows: In what section of the store would you find bread?
Follow up:
The students would practice the skills learned on the video in the classroom by putting pictures of grocery items in different sections of the classroom. Examples would be the dairy section, the meat section, the produce section, the frozen section, and the package food section. They would also role play using appropriate social skills such as saying "please and "thank you" at the appropriate times. They would also take turns being the cashier and purchasing items with money in the classroom. When they are successful at practicing these skills in the classroom, they would actually go to the grocery store and purchase items.
FUNCTIONAL COMMUNICATION TRAINING

**Purpose:**
To decrease inappropriate behavior and find the function of the behavior

**Method used:**
- Picture Communication
- Verbal Language
- Gestures

The method used depends on the individual needs of the student.
FUNCTIONAL COMMUNICATION TRAINING

Examples:

- Teach a student to say “help” instead of screaming to gain assistance.

- The student is taught to give the desired item to the staff member instead of screaming.

- Another example involves ignoring a tantrum.

- The student is prompted to request for a break when he or she is upset instead of having a tantrum.

- Table Manners: “Put your fork and spoon down please” instead of “stop pounding your fork and spoon on the table.”

The last example requires that the teacher avoid using the word “no” when a student is distressed. Instead, tell him/her what to do.
FUNCTIONAL COMMUNICATION TRAINING SAMPLE LESSON

Steps to Follow: Functional Communication Training

Materials Used: Pictures of Desired Items

Method Used: Picture Communication

Working with the Student: Making a Choice from a Picture

Leave a picture of an item that is highly desired in reach of the student.

Use a physical prompt such as hand over hand to get him/her to hand it to you.

Exchange the picture with the desired item.

Then have the student do the desired activity such as get a drink, go to the bathroom, play on the computer, or eat a food item.

Make sure that the item is located close to the student.

The student hands the picture to the adult.
USING COMIC STRIPS

A comic strip conversation is similar to a social story but is constructed around pictures instead of text.

**Purpose:**
Review a behavioral situation and discuss alternatives.

**Tips:**
Students work with an adult by drawing what occurred in a social situation and planning ways to handle the situation differently if it occurs in the future.
This comic strip would be used when there is a substitute teacher or a change in the student's schedule. If the student has a favorite cartoon character, the student or teacher could draw the cartoon character instead of stick figures.
USING COMIC STRIPS SAMPLE LESSON

Steps to Follow: Making a comic strip book for a student with autism

Materials:
Multiple pieces of paper divided into four parts and stapled together

Working With the Student:
Move to a quiet location in the classroom.
Sit beside the student.
Tell the student to draw pictures about a particular situation that involves the student. The student can use up to three pieces of the paper that are stapled together.
The last comic strip should be used for the positive outcome or solution to a behavioral incident, and this is drawn on the last piece of stapled paper.
Each day the student should be reminded of the comic strips done on previous days in order to help reinforce social skills throughout the day.
QUESTIONS TO ASK THE STUDENT WHEN DISCUSSING A BEHAVIOR:

Focus on one or more of the following questions when using a student’s comic strip conversation in response to the following target behaviors.

Where are you?
Who else is here?
What happened?
What did others do?
What did you say?
What did others say?

Last Steps:

The teacher shares thoughts with the student, but also allows the student to have some control over the situation by discussing his/her thoughts (with guidance from the teacher as needed). The students should be given assistance if the question is too difficult.
Quick Facts:
The use of scripts by peers helps the communication skills of students with autism as well as increasing social behavior. By using scripts, peers have learned the skills of interacting with students with autism as well as the enjoyment of helping others. Students with autism have also benefited by having fewer inappropriate behaviors and their quality of interactions with their peers improved.
PEER MEDIATION SAMPLE LESSON

Steps to Follow: Peer Mediation Interventions

Materials: Worksheet with picture/word steps for eating in the cafeteria
Worksheet with happy/sad faces

Peers without social delays are taught to use the following facilitative social skills by role playing the skills prior to starting an activity with the student with autism.

- Compliment
- Look
- Wait
- Listen
- Answer questions

The peers should be taught to look, wait, and listen, to allow the student with autism time to respond when they are given a direction by their peer.
I Eat My Own Lunch

At school we eat lunch together in the cafeteria.

We eat our own lunch.

Sometimes I ask other students for food.

The students are not happy when I ask them for their lunch.

I will try to eat my own lunch at school.

I will try not to ask other students for their lunch.
**Working with the Student:**

The peer discusses pictures of steps for eating lunch in the cafeteria on a worksheet. (See the attached worksheet).

The peer asks the student with autism the questions about the worksheet so he/she demonstrates understanding.

The peer looks and points to the worksheet while he/she waits and listens to the student so he/she has time to respond.

If necessary, review the steps.

Tell the student to point to or state the steps depending on his/her skill level. Compliment the student on his/her efforts or success at pointing to or stating the steps.
Next discuss the sheet with happy/sad faces and the incentive for earning a happy face.

Walk to the cafeteria with the student with autism. Bring the worksheet to the cafeteria. Also bring a sheet with a sad face and a happy face. A happy face means that the student did not attempt to take another student’s food. A sad face means that he/she did attempt to take another student’s food. Tell the student with autism to circle the appropriate face and explain the reason they circled that face. If he/she got a happy face, he/she would get a treat or small toy to play with as a reward and also provide positive verbal reinforcement for their success. Compliment the student for trying even if he/she was unsuccessful and review the steps to help him/her be successful next time.

When earning a happy face, the student would get a treat or small toy to play with as a reward.
Augmentative Communication

Augmentation communication helps students gain some control over their environment through the use of pictures, signs, and words. It assists students by replacing their maladaptive behavior with appropriate communication and helps students to get their wants and needs met. These strategies make a situation more meaningful and predictable.
Augmentative Communication Strategies

PICTURE EXCHANGE SYSTEMS:

**Purpose:**
Visual-graphic symbols (which can be text-based, picture-based, or a combination of both) help students with self-management and transitioning from one activity to the next independently.

**Tips:**
- Use simple one or two step directions.
- Words should be simple ones that the student understands.
- Speak slowly.
- Use gestures.
- Allow adequate processing time.
PICTURE EXCHANGE SYSTEM SAMPLE LESSON

Steps to Follow:

Step 1

**Goal:** To teach a student with autism to discriminate between different pictures by exchanging pictures for objects

1) This step is silent and nonverbal.

2) Two adults are needed.

3) The first adult entices the student with a reward he/she really likes, such as a trip to the park.

4) The second adult assists the student to find the picture of the object and give it to the adult.
**Step 2**

**Goal:** The student with autism initiates exchanging pictures for objects.

This step is nonverbal.

1) A communication board is shown to the student.

2) The student is taught to remove the pictures and give them to the teacher to gain the desired object or activity.

3) During this step, the student is taught to generalize skills learned for different settings such as a park or grocery store.
Step 3

Goal: Discriminate pictures

1) The student is presented with two objects. One is a desired object and one is not desired.

2) The student receives the object shown in the picture they select whether he/she desires it or not. The objective is to get the student to properly match his/her desired object with the picture of that object.
**Step 4**

**Goal:** Teaching sentence structure with sentence strip “I want.”

1) Show the student with autism the sentence strip and verbalize “I want” while pointing to the words.

2) The teacher should model putting pictures of objects he/she wants at the end of the sentence strip by himself/herself.

3) The student is prompted to put pictures of objects he/she wants at the end of the sentence strip.
**Step 5**

**Goal:** Teach the sentence strip “What do you want?”

1) The teacher asks the student what he/she wants and directs him/her toward the communication board.

2) When the student demonstrates success at indicating the desired item he/she wants by pointing to it, he/she is ready for step 6.
Step 6

Goal: Discuss emotions and tell about feelings.

Transition to different activities and handle changes in routine.

1) The teacher should make visual schedules by putting pictures of the days' activities on a wall or communication board.

2) The student with autism is prompted eventually, through repetition, to know what will happen next in his/her daily routine.
THE TEACCH MODEL/VISUAL WORK SCHEDULES

**Purpose:** Teach students with autism that situations have meaning and are predictable. Create structure in the autistic students' environment and help them with transitions.

**Tips:**
Daily visual schedules should be based on the individual needs of the student.

Photos may be used.
COMPONENTS OF A VISUAL SCHEDULE

- The teacher should say to the student "first work, then play."

  The symbols are set up from left to right.

- Each student replaces a symbol for an activity completed with one for the next activity.

- The student takes a work activity from the left, performs the task, and puts it in the finish box at the right.
VISUAL SCHEDULES THAT PROMOTE INDEPENDENCE

DESK SCHEDULE OR WORK AREA
The student matches the shapes as he/she completes each work activity and puts it in a finish box located to the right of his/her work area. The student raises their hand. Next, the teacher checks their work to make sure it is completed. Next the student selects a “play” activity from the choice board.

WORK SCHEDULE
Student moves the number from left to right as he/she completes each work activity. When the work activity is completed, the student puts the work activity in the finish box located to the right of his/her work area. Next he/she raises their hand for the teacher to check it. Then the student can get a picture from the choice time board and take it to the matching “play” area.

FINISH BOX
SHELVES WHERE WORK ACTIVITIES ARE KEPT
The student does the work activity. When finished, he/she matches the shape to the schedule on their desk or work area.

CHOICE TIME BOARD WITH “PLAY” ACTIVITIES
The student takes a picture from the choice board to the matching play area.
Alternative Communication Strategies

Alternative communication strategies include sign language and gestures and also may be used to help students with autism get their wants and needs met by requesting items of preference. Gestures are motivating for gaining items that are important to the students.
Sign Language

**Advantage:**

No external devices are needed.

**Considerations When Deciding Whether to Teach Sign Language:**

- Student’s level of motor skills
- How quickly the autistic student can learn sign language compared with other methods of communication

**Tips:**

When teaching sign language, the simplest signs that demonstrate the meaning should be taught.

When possible, use iconic signs such as forming the hand like a circle like a yoyo.

Teach signs that don’t resemble each other to avoid confusion.
SIGN LANGUAGE SAMPLE LESSON

Steps to Follow:

Two adults should be present.

One adult sits behind the student to model the prompts. The other adult demonstrates the sign such as "cookie" and simultaneously vocalizes the word "cookie."

When teaching sign language, the simplest signs that demonstrate the meaning should be taught.
GESTURES

**Purpose:**
To communicate social messages

**Steps to Follow:** Teaching Gestures to Students with Autism
Prior to teaching gestures to the autistic student, make sure the autistic student has the skill of imitation. If not, teach that skill first. Physical mimicking assistance may be needed to teach the motion of the gesture. Model the gesture first.
First use a gesture (such as pointing to an item) to request it with verbal directions.
Once the autistic student has acquired the skill of using the gesture of pointing, discontinue the use of verbal directions.

Social messages such as “hi”, “bye”, or “high five” can also be communicated.

Provide situations that are worthwhile for the individual, which include real life situations. An example would be waving to a parent as he or she leaves the classroom.
**Tips:** When teaching gestures to students with autism it is important to teach gestures that are motivating to the student.

One important gesture is pointing.

The goal should be for the student to look at what the teacher is pointing to or retrieving. An example would be "Get that".

Another example would be to place something in a particular location by using pointing. An example would be "Put it there."
SOCIAL SITUATIONS FOR USING GESTURES

Clapping at the right time

High five to show approval
Example "Row, row, row your boat" chant - After practicing several times, pauses can be used after a few times which may encourage the autistic student to ask for "more" by using vocalizations and body language.
GESTURES SAMPLE LESSON

**Steps to Follow: Example of Teaching Gestures**

**Materials:** Puzzle at autistic student’s skill level

**Objective:** to motivate a student with autism to understand gestures

**Steps:**

When the student looks for his/her next puzzle piece:

- Point to the puzzle box and tap it.

- Take a puzzle piece out of the puzzle box.

- Gradually increase the delay between tapping and pointing so the student learns to respond to the teacher pointing instead of tapping the puzzle box.

This activity would be beneficial for any situation that is motivating for the student with autism.
CHAPTER V
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this project was to develop a manual on communication strategies to be used with students who experience autism. This manual provides information on three different methods of communication that can be taught depending on the individual needs of the autistic student. The needs include social skills, augmentative strategies, and alternative strategies. This manual was to be designed for use by (IEP) teams to provide assistance to students with autism.

Conclusions

A literature review was conducted, and the following three components were found to be effective for building communication skills with autistic individuals to help them to get their wants or needs met.

1. Social Skills are useful for helping autistic students with understanding the social cues of others as well as to reduce anxiety. Comic strips have been shown to reduce tantrums and create a fun learning environment. The use of social stories increases generalization of skills learned to other situations such as after school activities. Peer-mediated interventions have also had positive results by teaching students with autism to take turns. Video modeling increases play activities by individuals with autism when they interact with a sibling.

2. Augmentative strategies are effective in building communication skills in autistic students. The picture exchange system, which uses picture symbols, has shown improvement in the student with autism in the emergence of speech as well as in
decreasing problem behaviors.

3. Alternative strategies such as sign language/gestures and assistive technology may be used with autistic individuals. Sign language has helped students with autism communicate by using hand signs. It has been very useful for students who have good motor skills and has increased their vocalizations. Mechanical hand supports have also helped autistic students who are disabled to communicate more effectively by the student typing words on a letter board or keyboard. However, the results indicated that this method did not help non-speaking autistic students. Synthetic speech output devices have also been used as a communication method for teaching spelling to autistic individuals. The best results occurred when the device was used by itself without another electronic device.

4. Due to rapid and frequent new findings in the field of autistic behavior, additional research will be needed to keep this manual current to help school staff effectively deal with communication challenged students with autism.
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