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Effective Interventions for Children with Autism

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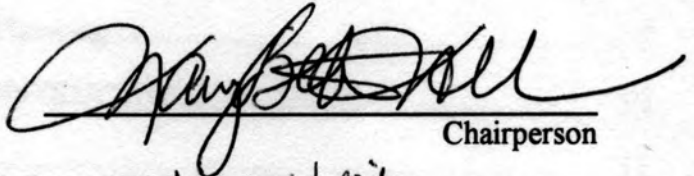
This starred paper submitted by Deborah M. West in partial fulfillment of the requirements for the Degree of Master of Science at St. Cloud State University is hereby approved by the final evaluation committee.

CHILDREN WITH AUTISM

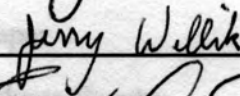
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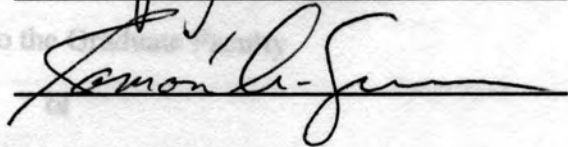
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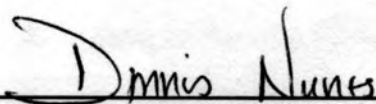
St. Cloud State University

in Partial Fulfillment of the Requirements

for the Degree

Master of Science

St. Cloud, Minnesota


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School of Graduate and Continuing Studies

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EFFECTIVE INTERVENTIONS FOR
CHILDREN WITH AUTISM

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Chapter I

INTRODUCTION

It is now more than 50 years since Leo Kanner first published a paper on children with "autistic disturbances of affective contact" (cited in Gillberg, 1992). In 1943, Kanner recognized a cluster of symptoms among 11 of the patients he was studying and labeled this cluster of symptoms as the syndrome Early Infantile Autism. The symptoms he observed in his patients included a preference for aloneness, an insistence on sameness and routines, idiosyncratic interactions with people and objects, and difficulties with language and communication. Kanner—and later Hans Asperger (cited in Delgado-Gasca & Hollander, 1997)—identified social interaction as the primary disability common to these four symptom clusters. Kanner and Asperger described an individual diagnosed with autism as an individual who (a) exhibited a lack of social skills, (b) had a limited ability to have a reciprocal conversation, and (c) displayed an intense interest in a particular subject (e.g., maps, roller coasters, trains) (Attwood, 1997; Delgado-Gasca & Hollander, 1997).

Autism has been the source of a great deal of interest since its discovery and a number of theories have been promoted regarding its etiology. Kanner's original thinking was that autism was caused by a disturbance in the growth of the brain. However, psychiatric theory contended that autism was caused by defective mothering

Chapter 1

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by mothers who were cold and distant to their babies (cited in Gillberg, 1992). It is now generally accepted that autism is not caused by "refrigerator moms," and that it is a neurobiological disorder which results in mild to severe information processing deficits (Janzen, 1996). However, it appears that autism is a disorder with multiple etiologies, making it difficult to develop appropriate interventions.

As researchers seek genetic and medical information regarding the cause(s) of autism, educators search to find the keys that will unlock the abilities and strengths of children with autism. There is a challenging and perplexing task. Educators are responsible for developing and implementing appropriate intervention strategies that address each student's peculiar social, communicative, and behavioral complexities.

Purpose of the Paper

The purpose of this paper was to (a) provide a brief overview of the criteria used to diagnose autism, and (b) discuss a number of intervention strategies that have been recommended to help children with autism reach their fullest potential.

Specifically, the paper will discuss three key intervention strategies: structured teaching, visually-cued instruction, and social perspective training.

Chapter 2

REVIEW OF LITERATURE

Autism is a complex developmental disability that typically occurs during the first 3 years of life. Autism and its associated behaviors have been estimated to occur in as many as 1 in 500 individuals (Rutter & Schopler, 1992). Gillberg (1990) stated that approximately 10 per 10,000 children are affected by severe forms of autism and that 3 to 5 times as many children may have milder forms of autism. A recent Autism Society of Wisconsin Newsletter (1998) reported that projected prevalence rates range as high as 45 per 10,000 births for the entire mild-severe continuum of the disorder.

Autism is commonly reported to be four times more prevalent in boys than girls. Some studies report it to be as low as 2.6 males to 1 female and as high as 5 males to 1 female (Brook & Bowler, 1992; Rutter & Schopler, 1992).

DIAGNOSTIC CRITERIA

Autism's prevalence rate makes it one of the most common developmental disabilities (Autism Society of America, 2000). Assessment of an individual referred for evaluation of autism is a multifaceted, multidisciplinary process. Not all symptoms are present in all children with autism. Some symptoms seem more common in very young children, whereas other symptoms do not seem to appear until the child with autism is older. Some symptoms disappear altogether. Some symptoms appear more

often in children with autism who also have severe mental retardation. In children with autism who have more developed cognitive capabilities, other symptoms are more prevalent (Siegel, 1991). A mistake most often made in diagnosis is the failure to recognize all of the possible combinations of symptoms that can occur (Freeman, 1993; Siegel, 1991).

To make a diagnosis, information must be compiled about the child's history, current behavior, cognitive skills, and family history (Freeman, 1993; Schopler, 1978). This information is best obtained from parent and teacher reports, direct observation, and assessments which indicate the individual's intellectual, language, and adaptive functioning (Center for the Study of Autism, 1989).

General characteristics of autism include (a) severe difficulty with communication, (b) severe delays in understanding social relationships, (c) inconsistent patterns of sensory responses, (d) uneven patterns of intellectual functioning, and (e) marked restriction of activity and interests (Twin Cities Autism Society, n.d.). In its *Diagnostic and Statistical Manual-Fourth Edition* (DSM-IV), the American Psychiatric Association (1994) outlined the following diagnostic criteria for Autistic Disorder:

- A. Six or more items from (1) (2) and (3), with at least two from (1) and one from (2) and (3)
 1. Qualitative impairment in social interaction:
 - marked impairment in the use of multiple nonverbal behaviors such as eye gaze, facial expression, and gestures to regulate social interaction
 - failure to develop peer relationships appropriate to developmental level
 - a lack of spontaneous seeking to share enjoyment, interest or achievements with other people (showing, bringing, pointing out)
 - lack of social or emotional reciprocity

2. Qualitative impairment in communication:
 - delay in, or lack of, the development of spoken language
 - marked impairment in the ability to initiate or sustain a conversation with others
 - lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level
 3. Restricted repetitive and stereotyped patterns of behavior, interests and activities:
 - preoccupation with one or more stereotyped and restricted activities
 - apparently inflexible adherence to specific, nonfunctional routines or rituals
 - stereotyped and repetitive motor mannerisms
 - persistent preoccupation with parts of objects
- B. Delays of abnormal functioning in at least one area prior to age 3 years
- C. Disturbance not accounted for by Rett's Disorder or Childhood Disintegrative Disorder. (p. 48)

Recent studies have suggested that autism spectrum disorders, that is the continuum of mild to severe cases, may be a more common condition than previously thought. However, the symptom clusters, which define the syndrome of autism, make it one of the most reliably diagnosed psychiatric disorders in children (Freeman, 1993; Rimland, 1993; Rutter & Schopler, 1992).

INTERVENTION STRATEGIES

Three interventions are often recommended as best practice strategies when teaching children with autism: structured teaching, visually-cued instruction, and social perspective training (Quill, 1995). These strategies are described in this section of the paper.

Structured Teaching

As children grow and mature, they are expected to become increasingly independent as demonstrated by flexibility, decision making, and socially appropriate behaviors. However, because children with autism have difficulty making sense of the world and are so impaired in their ability to process information, they have far more difficulty learning independent behaviors (Dalrymple, 1995). Children with autism are unable to adapt to changes easily and do not respond well to verbal information. They are strongly influenced by the environment, and minor disruptions in the environment can trigger a chain of aberrant behaviors. Since changes occur frequently in most environments, it is essential to determine what types of environmental supports will help children with autism better relate to their environment (Dalrymple, 1995).

Structured teaching is an environmental accommodation that increases the likelihood that learning will take place (Dalrymple, 1995). The TEACCH program is an example of one such structured teaching method that facilitates learning for students with autism. The primary purpose of the TEACCH method is to improve an individual's functioning skills by modifying the structure of the child's environment to accommodate autistic deficits (Schopler, Hearsey, & Mesibov, 1995). The TEACCH method incorporates two major components of structured teaching: (a) physical environment and (b) organization and planning.

Physical Environment

Physical environment refers to the physical layout of a room or environment. Visually clear areas and activity-specific boundaries enable a student to identify and

remember activities that take place in the space and to understand and function appropriately for the activity (Schopler et al., 1995). Boundaries block out visual and auditory stimuli that distract children with autism. Room dividers, window shades, and minimal wall decorations in work areas can help the child focus his or her attention. For some children, facing a blank wall helps to eliminate distraction. The use of bookshelves or cabinets near study areas not only creates boundaries, but also can make teaching materials more easily accessible.

Four areas should be considered when creating a structured classroom: a play area, a group area, a transition area, and work areas for one-to-one and independent work. Other areas could include a computer area, leisure area, home living area, self-help area, and motor skills area (Pennington, 1998). An illustration of an ideal physical environment is provided in Appendix A.

Organization and Planning

Children with autism who have been taught simple routines—such as brushing teeth—often fail to complete these activities spontaneously. Children with autism may know how to brush their teeth and then go to breakfast, but are unable to complete the sequence without verbal or physical cues. Although these routines may be learned quickly, the child may not demonstrate these skills in the absence of the teacher or caregiver. This may occur because the student is unable to generalize from the training session to a more natural setting. Therefore, the goal when working with children with autism is to maximize independence and minimize dependence by providing learning opportunities across a variety of persons, settings, and activities (Krantz, MacSuff, &

McClannahan, 1993). In this way, reliance upon routines can be turned into an asset instead of a liability (Schopler et al., 1995).

A structure for organization and planning provides the student with routines that indicate where and what type of activity will take place. Structured teaching approaches that address the organization and planning needs of children with autism include schedules and work systems. Examples of schedules and work systems are included in Appendix B.

Schedules. Schedules are a type of temporal support that is used to organize sequences of time for the child. They may provide information about a part of a day, the whole day, a week, a month, or a year. A schedule may also be used to sequence a routine such as hand washing within a specific time frame (Dalrymple, 1995).

Schedules help to explain to a child what will happen and when. Schedules help students anticipate and predict upcoming activities in order to decrease anxiety.

Schopler (1995) reported that visually clear schedules help students with autism because they:

1. Minimize problems of impaired memory or attention.
2. Reduce problems with time and organization.
3. Compensate for problems with receptive language, a problem which often results in the inability to follow verbal directions.
4. Foster student independence, especially from negative teacher-interactions over the repeated need to know what comes next.
5. Increase self-motivation by readily available visual reminders that 'first comes work, then play.' (p. 252)

Because the abilities of children with autism vary so greatly, schedules that address the child's developmental level should be developed. A word schedule may be used for

children who can read. For students who are not able to read, picture symbols, photos, or other concrete objects may be used. For example, a schedule using objects may use a cup to represent snack time, a toothbrush to indicate grooming, and a nut and bolt to indicate work. Picture schedules can use either photographs or picture symbols (e.g., Mayer Johnson "picsyms") (Schopler et al., 1995).

Schedules can be arranged from left to right and/or top to bottom. When a child is presented with a cue card or transition card, he or she will go to the schedule and pull off the first object, picture, or picsym and take it to the designated area and match it to the symbol positioned there. When the child has completed the activity, a transition card will be presented with the verbal cue, "check your schedule." The child can move independently between activities and is able to anticipate what will happen next by looking at the schedule (Pennington, 1998). Physically demanding activities are alternated with less demanding activities. Children are taught "first work, then play" (Schopler et al., 1995).

Work systems. Work systems are a means of informing students what to do once they are in the independent work area. Work systems help form work habits for learning tasks, routines, leisure, and self-help tasks. This aspect of structured teaching is essential for fostering independent work without direct teacher supervision.

According to Schopler et al. (1995), individual work systems communicate important information to the student including:

1. The task students are supposed to do, because they can easily see the items in each work study box.

2. How much there is to be done. The work-study box and its contents are always on the left, with the contents visible.
3. How students will know when they are finished, that is, when the material in the work-study-area box has been processed and move to the finished box, always on the right. (pp. 255-256)

Work systems can be designed for all developmental levels. A student functioning at the lower end of the spectrum may have a left-to-right work system with materials at the left and a finished box on the right. The student uses a schedule corresponding to the tasks at the left. He or she matches the first object, picture, symbol, numeric, or alphabetic codes to the corresponding work task. When the task is completed, it is placed in the finished box. When all of the activities are completed, the schedule indicates a play activity. Higher-functioning students may have their tasks in a folder with work in the left pocket and completed work in the right pocket (Pennington, 1998).

VISUALLY-CUED INSTRUCTION

The second key intervention strategy is visually-cued instruction. Visuals include the use of photographs, pictographs, and written prompts and cues. Visual supports can enhance social communication and interaction skills and they also enhance self-control (Quill, 1998). Examples of visual supports are provided in Appendix C.

Children with autism show a preference for visual-spatial information. The strategy of providing visual supports takes into account this preference and strength (Quill, 1995). Visual supports are things that enhance the receptive communication

ability of children with autism. Grandin (1995) wrote: "All my thinking is visual . . . Memories play like a movie on the big screen of my mind . . . I remember very little of what I hear unless it is emotionally arousing or I can form a visual image" (p.135).

Visual supports enhance effective receiving, processing, action, and expression. In other words, the primary benefit of visual supports is enhanced understanding. Students with autism have difficulty attending to foreground sounds while blocking out background sounds. This results in an inefficient system for understanding the environment. Visually presented information allows the child time to focus, disengage, shift, and reestablish attention. Using visual supports provides the tools a child with autism needs to improve comprehension (Hodgdon, 1996).

There are an endless variety of visual supports that can be implemented to assist children with autism in making sense of their world. Typically, these visual tools enable them to better understand information, verbal directives, and rules (Hodgdon, 1996).

Information

Schedules and mini-schedules are tools that provide information for children with autism. Mini-schedules supplement the daily schedule and direct choices or short sequences of activities. Calendars allow students to predict and prepare for upcoming events. Choice boards are frequently used to introduce students to the use of visual communication. Making choices is often the first communicative function taught to children with autism. Other examples of using visual supports to give information

include communicating “no,,” locating people, and assisting with transitions and travel (Hodgdon, 1998).

Directives

Visual supports can also help children understand directives. Since language processing interferes significantly with a student's ability to follow directions, the use of visual supports can improve compliance with classroom behavioral expectations. Putting rules in a visual form helps ensure mutual understanding of classroom expectations, which results in more consistent behavior. This, in turn, has a positive effect on the overall classroom environment. According to Hodgdon (1996), these supports can help students: “establish and maintain attention, stay focused to get complete instruction, clarify instructions, and perform to completion” (p. 70).

Rules

Rules can be presented to children with autism in many ways. Rules should state what to do and what not to do, and the positive and negative consequences of their actions. Rules should be presented as positively and concretely as possible (walk), but it is sometimes necessary to state the negative (no running). It can also be effective to pair both positive and negative (walk, no running). When children spend time in several settings during the school day, establishing visually accessible rules can prevent confusion and help establish more consistent behavioral expectations across settings (Hodgdon, 1996).

Social Perspective Training

The third intervention focus includes best-practice strategies that address the unique social perspective of children with autism (Gray & Gurand, 1993). Children with autism struggle to derive meaning from people and social situations. It is essential that they be taught strategies to make these social interactions more predictable and understandable (Quill, 1995). Layton and Watson (1995) reported that the behaviors necessary for children to be able to communicate more effectively include an understanding of cause and effect, the desire to communicate, someone with whom to communicate, and something to communicate about.

Traditional language programs assume that children have attending and imitative skills, and that they are reinforced by the interaction that occurs during the teaching process. However, children with autism generally do not derive pleasure from social interaction and may not be responsive to social rewards involved with reciprocal communication. Therefore, an alternative communication system must be used.

A number of alternative communication systems have been used to teach functional social and communication skills. These systems include sign language, electronic communication systems such as computers and commercially available devices, and low-technology devices that incorporate symbols or pictures. Programs that involve speech, pointing, or signing usually begin with labeling objects, an activity that pairs tangible reinforcers with social reinforcement (Bondy, 1994a).

Picture Exchange Communication System

Essential prelinguistic behaviors are underdeveloped in children with autism. For example, children with autism generally do not approach a listener, may actively avoid interaction, or may respond only when cued (Bondy, 1994b). The Picture Exchange Communication System (PECS) does not require prerequisite facial orientation, imitation, or motor skills. PECS recognizes that a child is currently seeking something in his or her environment and requires the child to initiate an interaction in order to obtain it (Bondy, 1994a). Initially, a teacher observes and determines what high-interest items are needed to for communication in the child's environment. The child is then taught to associate a picture or picture symbol with the items (Layton & Watson, 1995). Children using PECS are taught to approach and give an object or picture of a desired item to a communicative partner in exchange for the item. Tangible rewards are paired with social rewards and, as these social rewards are more effective at maintaining behavior, more socially-based communicative functions are introduced. Research has shown that up to 76% of young children with autism under the age of 5 who were introduced to PECS have come to use speech as their sole means of communication or in combination with a picture-based system (Bondy, 1994a).

Theory of Mind

Children with autism have difficulty understanding the beliefs and desires of others (Schuler, 1995). "Theory of Mind," an idea developed by Dr. Uta Frith and her colleagues, refers to the notion that people with autism do not understand that other people have their own thoughts, plans, and points of view. They have difficulty

comprehending when others do not know something (Center for the Study of Autism, 1989). They are unable to accurately understand and interpret social cues. Gestures and facial expressions are confusing and hold little meaning. Children with autism need techniques that will help them understand what is happening and why. They need to learn social skills that are relevant to their own experiences in a form that they can understand (Gray, 1995).

Social Stories

Social stories utilize visual instructional materials that include the child's experiences to present social information and teach social skills. Social stories are short stories written by parents or professionals that describe social situations and identify appropriate social responses (Gray, 1995).

A social story is developed following guidelines based on the learning style of children with autism. They are effective for preschoolers through adults who are interested in letters or are able to read. Modifications can be made for non-readers such as using picture symbols or tape recordings to supplement the visual materials. Social stories should be written for a specific student and a specific social situation.

According to Gray (1997), a social story may:

- personalize or emphasize social skills covered in any social skills training program;
- translate a goal (possibly written by a student) into understandable steps;
- explain the "fictional" qualities of a story, video, movie or television show;
- teach a routine, as well as helping a student accommodate to changes in routine or "forgetting";
- address a wide variety of behaviors, including but not limited to aggression, fear, and obsessions and compulsions. (p. 2)

A social story is comprised of three types of sentences: descriptive, perspective and directive sentences. A descriptive sentence defines who, what, when, and why a situation occurs. Perspective sentences describe the thoughts, feelings and moods of the people in the story. Directive sentences are positively stated statements of the desired response (Gray, 1997). An example of a social story is included in Appendix D.

Another effective social story technique is Comic Strip Conversations. Comic Strip Conversations use stick figures, symbols, and color to define interactions between two or more people. They allow a child with autism to visually comprehend what may have been a quick exchange of information that occurs in conversations. Comic Strip Conversations identify what people say and emphasize what they are thinking. Eight symbols are used to represent abstract conversational concepts such as interrupting. Color visually defines the feelings of each speaker. Green means good ideas, happy, and friendly. Red means bad ideas, teasing, anger, and unfriendly. Comic Strip Conversations can provide insights into the student perspective while helping them understand the perspective of others (Gray, 1997).

(1995) stated that the inability of children with autism to make sense of interpersonal relationships must be the focus of intervention efforts. "Relationships are complex and do not lend themselves to simple remedies, but with each new idea or proposed treatment, additional insights are possible" (p. 8).

The following quotations from *The Learning Style of People with Autism: An Autobiography* (Grandin, 1995) describe succinctly the "otherworldliness" of the

perspective of a person with autism and the language and social difficulties they experience.

Chapter 3

SUMMARY AND DISCUSSION

Educating children with autism is a challenge that requires creative planning.

Educators are responsible for planning a program that enhances strengths and minimizes deficit areas so that children with autism may reach their fullest potential in the classroom and community. The primary goal in teaching children with autism is to provide them with the structure they need to learn the skills necessary to function as independently as possible.

This paper examined three interventions often recommended as best practice strategies when teaching children with autism: structured teaching, visually-cued instruction, and social perspective training. Interventions in these each of three areas have been designed to address the major learning obstacle for children with autism: communication and socialization difficulties. Quill (1995) stated that the inability of children with autism to make sense of interpersonal relationships must be the focus of intervention efforts. "Relationships are complex and do not lend themselves to simple remedies, but with each new idea or proposed treatment, additional insights are possible" (p. 8).

The following quotations from *The Learning Style of People with Autism: An Autobiography* (Grandin, 1995) describe succinctly the "otherworldliness" of the

perspective of a person with autism and the language and social difficulties they experience.

I was like a visitor from another planet who has to learn the strange ways of the aliens. I make social decisions based on intellect and logic. Memories of past experiences are used in the equation. I have learned from experience that certain behaviors make people mad. Sometimes my logical decisions are wrong because they are based on insufficient data.

When I was a child I usually could understand everything that adults said directly to me. When adults talked among themselves, it sounded like gibberish. I had the words I wanted to say in my mind, but I just could not get them out. It was like a big stutter. When my mother wanted me to do something, I often screamed. I screamed because it was the only way I could communicate. (p. 43)

Individuals with autism can learn to overcome these serious language and social impairments. Educators must be able to embrace each child's social perspective and social understanding as they teach communication skills, independent living skills, and functional academics. Educators who focus on children's strengths and who understand developmental differences will meet with the most success in helping children with autism become young, productive adults (Center for the Study of Autism, 1989)

Ultimately, children with autism need the same thing as all other children: opportunities for happiness and independence. The difference is that specific strategies must be consistently implemented if they are to achieve these important goals.

REFERENCES

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, D.C.: Author.
- Attwood, A. (1997). *Asperger's syndrome: A guide for parents and professionals*. London: Jessica Kingsley.
- Autism Society of America. (2000). *What is autism?* Rockville, MD. [On-line]. Available: http://www.autism_society.org/ass_home.html.
- Autism Society of Wisconsin Newsletter. (1998). [Online]. Available: <http://www.asw-autism.org/>.
- Bondy, A. S., & Frost, L. A. (1994a). The picture exchange communication system. *Focus on autistic behavior*, 9(3), 1-19.
- Bondy, A. S., & Frost, L. A. (1994b). *The picture exchange communication system training manual*. Cherry Hill, NJ: Pyramid Educational Resources.
- Brook, S., & Bowler, D. (1992). Autism by another name? Semantic and pragmatic impairments in children. *Journal of Autism and Developmental Disorders*, 22(1), 61-61.
- Center for the Study of Autism, Inc. (1989). *Theory of mind* [brochure].
- Dalrymple, N. J. (1995). Environmental supports to develop flexibility and independence. In K. A. Quill (Ed.), *Teaching children with autism* (pp. 243-264). New York, NY: Delmar.
- Del Giudice-Asch, G., & Hollander, E. (1997). Altered immune function in autism. *CNS Spectrums*, 2(3), 61-66.
- Freeman, B. J. (1993). The syndrome of autism: Updates and guidelines for diagnosis. *Infants and Young Children*, 6(2), 1-11.
- Gillberg, C. L. (1990). Infantile autism: Diagnosis and treatment. *Acta Psychiatrica Scandinavica*, 61, 209-215.
- Gillberg, C. L. (1992). Autism and autism-like conditions: Subclasses among disorders of empathy. *Journal of Child Psychology and Psychiatry*, 33(5), 813-841.
- Grandin, T. (1995). *Thinking in pictures and other reports from my life with autism*. New York: Random House.

REFERENCES

REFERENCES

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, D.C.: Author.
- Attwood, A. (1997). *Asperger's syndrome: A guide for parents and professionals*. London: Jessica Kingsley.
- Autism Society of America. (2000). *What is autism?* Rockville, MD. [On-line]. Available: http://www.autism_society.org/asa_home.html/.
- Autism Society of Wisconsin Newsletter. (1998). [Online]. Available: <http://www.asw4autism.org/>.
- Bondy, A. S., & Frost, L. A. (1994a). The picture exchange communication system. *Focus on autistic behavior*, 9,(3), 1-19.
- Bondy, A. S., & Frost, L. A. (1994b). *The picture exchange communication system training manual*. Cherry Hill, NJ: Pyramid.
- Brook, S., & Bowler, D. (1992). Autism by another name? Semantic and pragmatic impairments in children. *Journal of Autism and Developmental Disorders*, 22(1), 61-81.
- Center for the Study of Autism, Inc. (1989). *Theory of mind* [brochure].
- Dalrymple, N. J. (1995). Environmental supports to develop flexibility and independence. In K. A. Quill (Ed.), *Teaching children with autism* (pp. 243-264). New York, NY: Delmar.
- Delgiudice-Asch, G., & Hollander, E. (1997). Altered immune function in autism. *CNS Spectrums*, 2(5), 61-68.
- Freeman, B. J. (1993). The syndrome of autism: Updates and guidelines for diagnosis. *Infants and Young Children*, 6(2), 1-11.
- Gillberg, C. L. (1990). Infantile autism: Diagnosis and treatment. *Acta Psychiatrica Scandinavica*, 81, 209-215.
- Gillberg, C. L. (1992). Autism and autism-like conditions: Subclasses among disorders of empathy. *Journal of Child Psychology and Psychiatry*, 33,(5), 813-841.
- Grandin, T. (1995). *Thinking in pictures and other reports from my life with autism*. New York: Random House.

Gray, C.A. (1995). Teaching children with autism to "read" social situations. In K. A. Quill (Ed.), *Teaching children with autism* (pp. 219-241). New York, NY: Delmar.

Gray, C. A. (1997). *Social stories and comic strip conversations*. Arlington, TX: Future Horizons.

Gray, C. A., & Gurand, J. D. (1993). Social stories: Improving responses of students with autism with accurate social information. *Focus on Autistic Behavior*, 8(1), 1-10.

Hodgdon, L. A. (1996). *Visual strategies for improving communication*. Troy, MI: Quirk Roberts.

Hodgdon, L. A. (1998). *Visual strategies for improving communication*. Paper presented at the meeting of the Autism Resource Network, Minneapolis, MN.

Janzen, J. E. (1996). *Understanding the nature of autism: A practical guide*. San Antonio, TX: Therapy Skill Builders.

Johnson, M. (1994). *The new social stories book*. Arlington, TX: Future Horizons.

Krantz, P., MacSuff, G., & McClannahan, L. (1993). Teaching children with autism to use photographic activity schedules: Maintenance and generalization of complex response chains. *Journal of Applied Behavioral Analysis*, 26, 89-97.

Layton, T. L., & Watson, L. R. (1995). Enhancing communication in nonverbal children with autism. In K. A. Quill (Ed.), *Teaching children with autism* (pp. 73-101). New York, NY: Delmar.

Pennington, M. (1998). *Treatment and education of autistic and related communication handicapped children*. Paper presented at the meeting of the Regions 5 & 7 Autism Task Force, St. Cloud, MN.

Quill, K. A. (1995). Enhancing children's social-communicative interactions. In K. A. Quill (Ed.), *Teaching children with autism* (pp. 163-189). New York, NY: Delmar

Quill, K. A., (1995). *Teaching children with autism*. New York, NY: Delmar.

Quill, K. A. (1998). *Teaching children with autism and pervasive developmental disorders: Strategies to enhance communication and socialization*. Paper presented at the meeting of the Twin Cities Autism Society, Saint Paul, MN.

Rimland, B. (1993). Plain talk about PDD and the diagnosis of autism. *Autism Research Review International*, 7(2), 3-4.

Rutter, M., & Schopler, E. (1992). Classification of pervasive developmental disorders: Some concepts and practical considerations. *Journal of Autism and Developmental Disorders*, 22(4), 459-482.

Schopler, E., Hearsey, K., & Mesibov, G. (1995). Structured teaching in the TEACCH system. In E. Schopler & G. B. Mesibov (Eds.), *Learning and cognition in autism* (pp. 243-267). New York, NY: Plenum Press.

Schuler, A. L. (1995). Thinking in autism: Differences in learning and development. In K. A. Quill (Ed.), *Teaching children with autism* (pp. 11-32). New York, NY: Delmar.

Siegel, R. (1991). Toward DSM-IV: A developmental approach to autistic disorder. *Psychiatric Clinics of North America*, 14(1), 53-67.

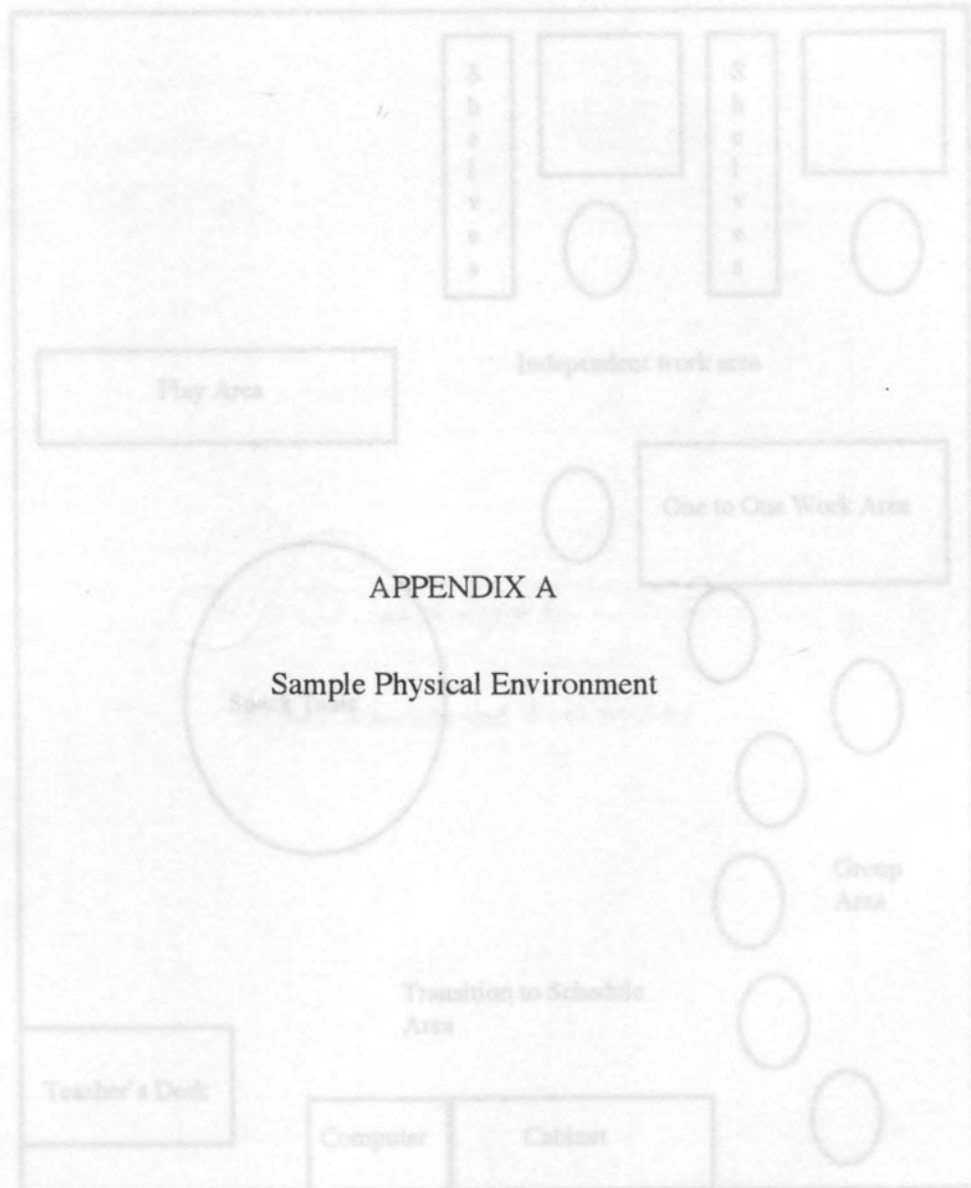
Twin Cities Autism Society. (n.d.). *Parents guide to autism*. [brochure].

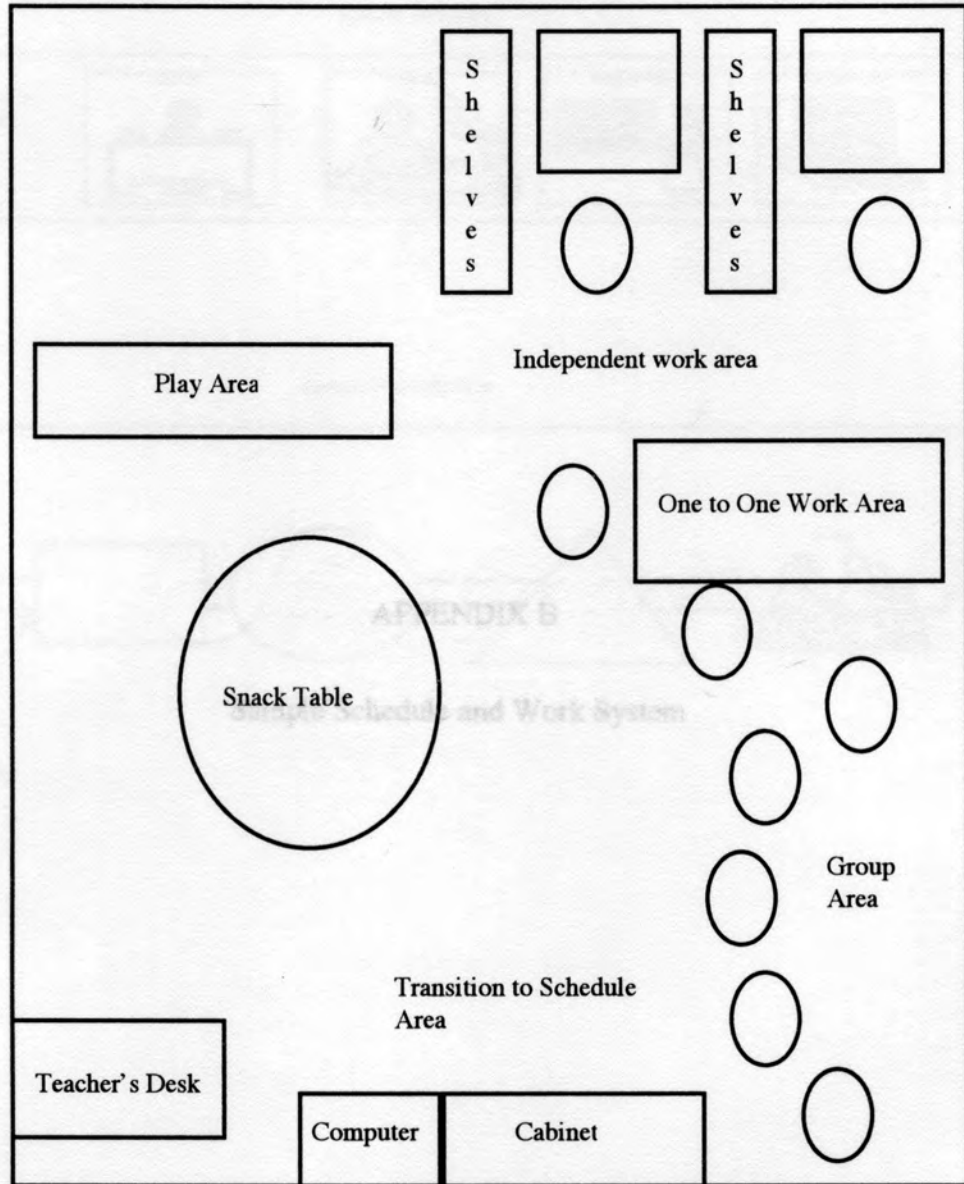


APPENDIX A

Sample Physical Environment

APPENDIXES

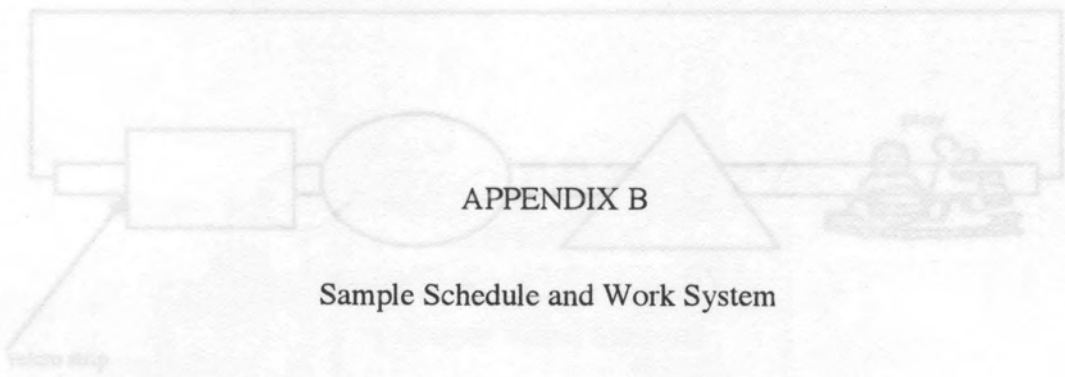




Example Schedule



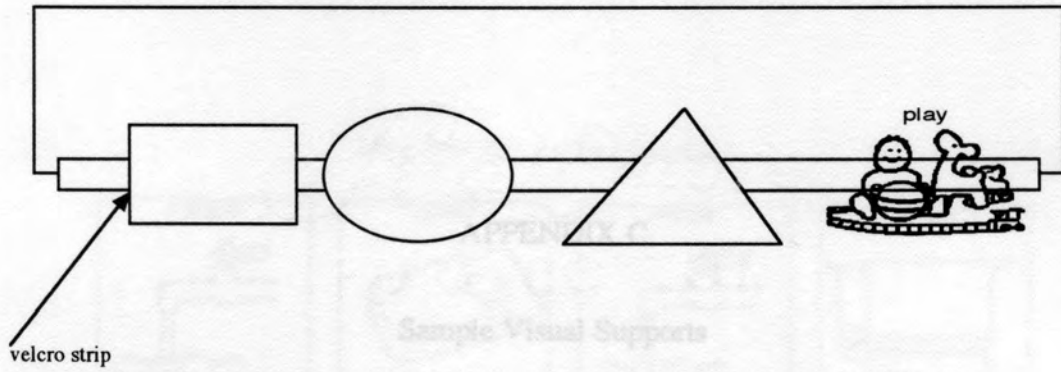
Example Work System



Sample Schedule



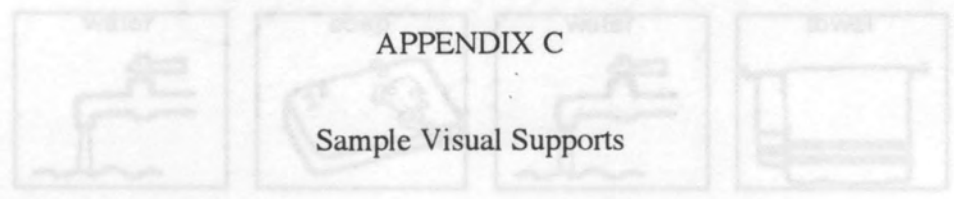
Sample Work System



Rules For Calendar Group



After Schedule for Handwashing



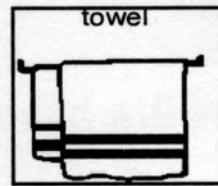
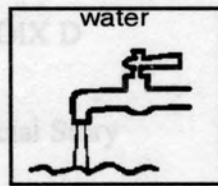
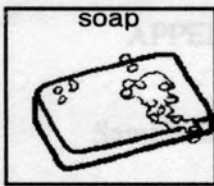
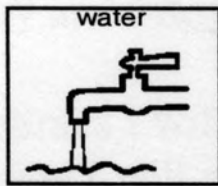
APPENDIX C

Sample Visual Supports

Rules For Calendar Group



Mini Schedule for Handwashing



Riding the School Bus
-Valerie Lowing

Some children ride to school on a bus.

Usually the bus will pick me up in the morning and bring me to school.

Some children like riding the bus. They think it is fun.

Usually the bus will pick me up from school at the end of the day and bring me back home.

APPENDIX D

Sometimes I will not ride the bus. Mom or dad will tell me when I will not ride the bus. (p. 52)

Sample Social Story

(Johnson, 1994).

Riding the School Bus

-Valerie Lowing

Some children ride to school on a bus.

Usually the bus will pick me up in the morning and bring me to school.

Some children like riding the bus. They think it is fun.

Usually the bus will pick me up from school at the end of the day and bring me back home.

Sometimes I will not ride the bus. Mom or dad will tell me when I will not ride the bus. (p. 52)

(Johnson, 1994).