

# CAIRN REVIEW

## of Evidence-based Diagnosis and Treatment in Autism

Canadian Autism Intervention Research Network

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### Teaching ASD kids – It's easier once you understand how they learn

by Patricia Colton

Children and adolescents with autism have particular difficulties with learning that seem to be related to the symptoms of their condition. Some of the learning problems have to do with underlying perceptual and cognitive dysfunctions. Others are related to the difficult behaviors they exhibit that interfere with their ability to learn and pay attention. Understanding the “triad of impairments” – social interaction, communication, and interacting with the environment – that children with autism have can go a long way to understanding how they learn, and to helping you adjust your teaching style to help them learn better.

Much of the research done in the area of learning disability in autism is deficit-based, but there is a growing body of literature that sees the “autistic mind,” especially in high functioning individuals, as representing a cognitive style. It is important to understand that while all people with an autism spectrum disorder (ASD) share these cognitive dysfunctions, each person has his/her own particular way of showing them. Education and remediation need to be done on an individual basis, recognizing the strengths and weaknesses of each person.

The learning disabilities associated with deficits in social interaction, communication, and interaction with the environment make it difficult for children with ASD to learn from teachers and peers, to process whole concepts versus small units of information, and to use common, everyday language that others pick up on easily and take for granted. This latter problem makes it harder for them to repeat back what they have learned. Their inability to communicate clearly can cause frustration that often leads to tantrums and other problem behaviors.

Dr. Gary Mesibov, Director of the Division for the Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) at the University of North Carolina at Chapel Hill, has described the learning styles of children and adolescents with autism in terms of what teachers can expect to see in the classroom.<sup>1</sup>

#### Learning styles of children with autism

- Students with ASD find organization difficult. The more complex the task the more likely the student is to freeze and not even begin it, or to act out.
- They have trouble sequencing the steps needed to complete a complex task and may need explicit instructions on how to “chunk down” a task into smaller parts. Visual rather than verbal instruction, or a combination of both, is often necessary.
- Students may be distracted by sounds or become fascinated by movement of objects, from which they are unable to break away. For those students who cannot learn to filter out distractions, finding out what causes the distraction and removing or masking it may be the only solution.
- These same students have problems with generalization – learning in one situation is not transferred to others. Coordination with home, school, and other community supports is crucial to reinforcing learning.
- Uneven profiles of skills mean that a student may have exceptional skills,

### Characteristics of children with autism

Dr. Bryna Siegel is a developmental psychologist and Director of the Autism Clinic at the University of California, San Francisco. She has created a list of “autistic learning disabilities” categorized by deficits in:

#### Social interaction

- lack of interest in interacting with others
- lack of response to social rewards (“Good work!” or “Good job!”)
- inability to imitate or model others’ behavior
- lack of desire to belong to a group

#### Communication

- difficulty understanding gestures and displays of emotion
- difficulty using gestures and facial expressions
- preference for visual vs. auditory learning
- problems with processing whole concepts vs. small units of information

#### Interacting with the environment

- lack of interest or aversion to new things or situations
- desire for routines and ritualized activity
- focusing on one type of item to the exclusion of others
- fascination with one facet of an object without appreciating the use or meaning of the whole object (e.g., becoming interested in the wheel of a toy car, but not playing pretend with the car)
- over- or under-sensitivity to sound, light or touch

<sup>1</sup> Siegel, B. (1999). *Autistic Learning Disabilities and Individualizing Treatment for Autistic Spectrum Disorders*. *Infants and Young Children*, 12(2): 27-36.

for example, in being able to understand spatial relationships, but be unable to use his or her talent because of a lack of organizational skills. Students may also have precocious or exceptional oral reading skills, yet not truly understand what they have read because of problems with central coherence – being able to deal with small parts, in this case, the words, but being unable to bring together previously acquired knowledge and skills to comprehend what they are reading.

- In the right context, an ASD student’s ability to focus on details can actually be a strength. Skills in arithmetic, basic language skills, and functional language are often preserved, and a skilled teacher will be able to capitalize on them.

Children and adolescents with autism will always have challenges to learning, but teachers who understand the cognitive and perceptual issues involved can go a long way toward helping these kids realize their potential.

<sup>1</sup> Mesibov, G., Learning Styles of Students with Autism, at <http://www.teacch.com/edkids.htm>

Patricia Colton is Project Coordinator for the Canadian Autism Intervention Research Network (CAIRN), where she writes abstracts of evidence-based research studies from around the world for posting on the CAIRN website.

# Helping ASD kids learn can be as simple as ABC

by Elizabeth Starr

As a teacher, you know that every child learns differently, and teaching methods that work for one child may not work for another. Children with autism spectrum disorders (ASD) can be a particular challenge given their difficulties in the areas of communication, social interaction and behavior.

Understanding these difficulties, and differentiating your teaching style accordingly, can maximize the strengths of these children, support them in weaker areas, and establish the foundation for a productive school year.

## A is for Alternatives

Many children with ASD are nonverbal, so they need to find an alternative means to communicate. One of the most important and empowering things you can do as a teacher is to help them develop an alternative, effective form of communication in the classroom.

Don't assume they will find a way to communicate with you. Parents often become so good at anticipating their child's needs that the child doesn't have to work on this. They need a reason to communicate.

Alternative and augmentative communication devices, such as the Picture Exchange Communication System, can be most helpful. Visual schedules, structured teaching, permitting choice in activities, and social stories are just a few of the additional strategies that parents and teachers should be encouraged to investigate.

## B is for Behavior

"Hello Mrs. Jones. Please come to the school and take your child home." This is a phone call that parents of children with ASD dread, and receive all too often.

Behavioral issues are probably the greatest impediments to effective home/school relationships. It is tempting to look at behaviors we'd rather not see – screaming, hitting, throwing, biting – as "maladaptive." But if the behavior works, and the child manages to escape a difficult situation and go home, then the behaviors are exceedingly adaptive, and very useful. The problem, of course, is that they're not very socially acceptable.

Perhaps the child lacks a means of communication to make his/her needs known. Or what we are asking them to do is too hard, too boring or too long but they do not have the means to request a break or a change. Maybe they have a particular sensitivity to noise and we are requiring them to be in a noisy environment.

It is essential that we address these underlying difficulties and teach the child the necessary (and socially acceptable) skills to allow a fundamental change of behavior. Otherwise, every situation will simply result in a reaction to observable behavior, and the result will be that we strengthen the precise behavior we would like to see replaced!

## C is for Communication

It is critical that parents and teachers form a good working relationship and have open lines of communication. Parents know their children better than anyone else, and the information they can share regarding their child's learning style, likes and dislikes, anxieties, etc., can protect everyone from frustration and needless upsetting episodes, and create a productive learning environment right from the start.

Parents and teachers who understand each other's perspective, who collaborate and work as a team to decide goals and strategies – without feeling threatened or challenged – will enhance the child's ability to learn by ensuring a consistent program at home and at school.

There are, of course, many other strategies and techniques that teachers can use to create a quality education for children with ASD, and the beauty of them is that they are helpful for just about any child experiencing difficulties in school – they are simply elements of "good teaching."

Here's to a good year for the children, the parents and the teachers – they all deserve it!

*Elizabeth Starr is an Associate Professor in the Faculty of Education at the University of Windsor, where she teaches courses in special education and autism.*

## Resources for Teachers

### BOOKS

#### The Picture Exchange Communication System: Training Manual

By A. Frost & A. Bondy  
Published by Pyramid Educational Consultants, Newark, DE (2000)

#### Visual Strategies for Improving Communication: Practical Supports for School and Home

By L.A. Hodgdon  
Published by QuirkRoberts Publishing, Troy, MI (1995).

#### Solving Behavior Problems in Autism: Improving Communication with Visual Strategies

By L.A. Hodgdon  
Published by QuirkRoberts Publishing, Troy, MI (1999)

#### Asperger Syndrome – Practical Strategies for the Classroom: A Teacher's Guide

By the Leicester City Council Education Department & Leicestershire County Council Education Department  
Published by the National Autistic Society, London (1998)

### WEBSITES

#### Understanding the Student with Asperger's Syndrome: Guidelines for Teachers

By Karen Williams  
[http://www.udel.edu/bkirby/asperger/karen\\_williams\\_guidelines.html](http://www.udel.edu/bkirby/asperger/karen_williams_guidelines.html)

#### Autism Society of America

<http://www.autism-society.org>

#### Autism Society Ontario

<http://www.autismsociety.on.ca/>

#### Project TEACCH

<http://www.teacch.com/>

#### Online Asperger Syndrome Information and Support

<http://www.udel.edu/bkirby/asperger/>

## PECS – The Picture Exchange Communication System

One of the hallmarks of children with autism spectrum disorders (ASD) is their inability to point or use other gestures to communicate. This is attributed to a lack of joint attention, a set of skills that allows typical children to share the experience and knowledge of others and to develop shared meanings. This inability or lack of desire to communicate cuts them off from their major route to learning about the world.

The Picture Exchange Communication System (PECS) was developed by Lori Frost, a speech-language pathologist, and Dr. Andrew Bondy, an educational psychologist, to help children improve joint attention and the motivation to communicate. It uses a system of cards that illustrate objects, concepts, and activities.

PECS also helps with social interaction skills since the child is required to approach an adult or peer and hand over the card with the request in order to get what he/she wants or needs. No verbal prompts are used; the goal is to encourage spontaneous communication that does not depend on verbal instruction by others.

The complexity of the symbols can be increased so that the child can communicate complete sentences, make comments about situations or objects, and answer questions. The child does not have to have the ability to make eye contact, engage in joint attention, or to be able to imitate in order to learn how to use the technique.

Studies of children introduced to PECS have shown significant improvements in vocabulary, and in their ability to initiate interactions with peers and adults. Unpleasant behaviors, such as the children screaming to get what they want, were also lessened, resulting in a high degree of parental satisfaction.

See *Resources for Teachers* or go to [www.pecs.com](http://www.pecs.com) to find out more about PECS. Please be aware, however, that PECS was developed and is marketed by a private company. This article does not constitute an endorsement of PECS as a product.

# The power of Positive Behavioral Support

by Pat Mirinda

Like many individuals with developmental disabilities, children with autism spectrum disorders (ASD) often exhibit a number of problem behaviors that are highly disruptive and impede learning. These behaviors can be challenging for both parents and teachers.

Traditional “behavior modification” techniques based primarily on consequences may work in the short term, but they are often not effective in producing meaningful and long lasting improvements in behavior.

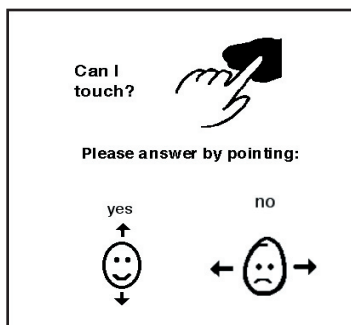
Enter Positive Behavioral Support (PBS), a powerful new tool that teachers, parents, behavioral therapists and others in home, school, and community settings can use to help children with ASD learn more appropriate ways of interacting.

PBS has been described as an “applied science that uses educational methods to expand an individual’s behavior repertoire [in order to]...enhance quality of life and...minimize his or her problem behavior”<sup>1</sup>.

**PBS focuses on changing environments and on teaching new, adaptive skills proactively, rather than on simply manipulating consequences after problem behavior has occurred.**

PBS interventions include lifestyle modifications, environmental re-design or adaptations, skill development and the teaching of alternative behaviors, and changes to the consequences maintaining problem behavior. PBS is much more than traditional “behavior modification,” in that it focuses on changing environments and on teaching new, adaptive skills proactively, rather than simply on manipulating consequences after problem behavior has occurred.

PBS begins with a “functional behavior assessment” (FBA), which commonly involves the use of two assessment tools, the Functional Analysis Interview (FAI) and the Functional Analysis Observation (FAO), to better understand the child’s strengths, preferences and communication strategies as well as the events and circumstances influencing his/her problem behavior.



Picture cards like this one can help children with ASD learn positive ways of communicating.

The behaviors are examined not in isolation but in relation to a larger dynamic: How often do the behaviors occur? When, where and with whom are they most likely or least likely to occur? What events and circumstances predict or set up the behaviors? What happens following the behaviors?

By gathering information and observing the behaviors directly, we learn more about the triggers, maintaining consequences, and overall dynamics of the problem behavior. Once this understanding is in place, effective interventions that “match” the dynamics of the behavior can be designed and implemented.

Many types of interventions can be used in a PBS framework. Consider the experience of Shannon, mother of twin girls Haley and Kelti, whose remarkable story is shared in the book, *Families and Positive Behavior Support: Addressing Problem Behaviors in Family Contexts*.<sup>2</sup>

“Kelti would eat books instead of reading them,” reports Shannon. “She’d eat books, she’d eat plants, she’d fill her mouth full of rocks. [She and Haley would] climb up on the furniture in someone’s office or home, and Kelti still wasn’t toilet trained.”

One of Haley’s most disruptive problem behaviors occurred in the community – she often darted away from Shannon to touch or look at various objects, mannequins, or other visually interesting displays. Because Haley had no awareness of danger, she often ran away to look at something while Shannon’s back was turned and then, when Shannon reprimanded her, she responded by kicking and yelling loudly.

The FBA pointed to the need for Haley to learn an appropriate way to ask for permission to look at or touch things. Shannon decided to use a picture card with the words “Can I touch this?” and “yes” and “no” symbols on it.

## Make PBS work for you

*The great thing about Positive Behavioral Support strategies is that anyone with the appropriate training can implement them. Here are a few resources to get you started.*

### BOOKS

#### Positive Behavioral Support:

##### Including People with Difficult Behavior in the Community

Edited by Lynn Kern Koegel, Ph.D., Robert L. Koegel, Ph.D., & Glen Dunlap, Ph.D.  
Published by Paul H. Brookes, Baltimore (1996)

#### Families and Positive Behavior Support:

##### Addressing Problem Behaviors in Family Contexts

Edited by Joseph M. Lucyshyn, Ph.D., Glen Dunlap, Ph.D., & Richard W. Albin, Ph.D.  
Published by Paul H. Brookes, Baltimore (2002)

#### Functional Assessment and Program Development for Problem Behavior – A Practical Handbook, 2nd Edition

By Robert E. O’Neill, Ph.D., Robert H. Horner, Ph.D., Richard W. Albin, Ph.D., Jeffrey R. Sprague, Ph.D., & Keith Storey, Ph.D.  
Published by Brooks/Cole, Pacific Grove, CA (1997)

#### Communication-Based Intervention for Problem Behavior:

##### A User’s Guide for Producing Positive Change

By Edward G. Carr, Ph.D., Len Levin, M.A., Gene McConnachie, Ph.D., Jane I. Carlson, M.A., Duane C. Kemp, Ph.D., & Christopher E. Smith, M.A.  
Published by Paul H. Brookes, Baltimore (1994)

### WEBSITES

#### Center for Effective Collaboration and Practice

<http://www.air.org/cecp>

#### Center for Evidence Based Practice for Young Children with Challenging Behavior

<http://www.challengingbehavior.org>

#### Center on Positive Behavioral Interventions and Supports

<http://www.pbis.org>

#### Elearning Design Lab

<http://www.elearndesign.org/resources.html>

#### On-line Academy for Positive Behavioral Support

<http://onlineacademy.org/>

#### Rehabilitation Research and Training Center on Positive Behavior Support

<http://rrtcpbs.fmhi.usf.edu>

“If I saw [Haley] was interested in something, I just had her go ask someone if she could look at it or touch it [using the card],” says Shannon. “She didn’t hit them when they said no, I guess because they were strangers . . . and eventually, she learned to take ‘no’ [for an answer] from me, too!”

Shannon credits PBS for bringing about long-lasting and positive change that has made family life much less frustrating and a lot more enjoyable.

<sup>1</sup>Carr, E. G., Dunlap, G., Horner, R. H., Koegel, R. L., Turnbull, A. P., Sailor, W., Anderson, J. L., Albin, R. W., Koegel, L. K., & Fox, L. (2002). Positive behavior support: Evolution of an applied science. *Journal of Positive Behavior Interventions*, 4, 4-16.

<sup>2</sup>Lucyshyn J., Dunlap G., & Albin R. (Eds.). (2002). *Families and positive behavior support: Addressing problem behaviors in family contexts* (pp. 185-208). Baltimore: Paul H. Brookes.

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## Computers aid recognition of facial expressions

Children with autism have difficulty understanding the facial expressions of other people. This can lead to social misunderstandings, confusion, and feelings of rejection.

Can computers help?

A recent German study used a computer program to display whole face and eyes-only photographs depicting different emotional states (e.g. sad, happy, angry, etc.). When asked to identify the emotion depicted on the screen, the participating adults and adolescents who answered correctly were rewarded with a "smiley face."

Those who received the intensive training showed significant improvement in their ability to identify emotional states depicted in the on-screen pictures.

## ABA alternative shows promise

A new therapy being implemented at the Scottish Centre for Autism in Glasgow is showing promise as an alternative to Applied Behavioral Analysis (ABA) in treating autistic disorders.

The social-communication program (SCP) is designed to increase a child's motivation to communicate by working to improve non-verbal communication skills, language use, imitation, and social interaction abilities. These skills are viewed as important to engaging in play and developing social skills, and to improving behavioral flexibility.

The program uses a developmental approach; that is, staff look at each child's developmental level and then set learning goals based on what skills the child needs to reach the next developmental stage.

Children in the program showed significant improvement in joint attention and imitation skills, both important factors affecting a child's ability to learn. They also showed better socialization, skills of daily living, motor skills and adaptive behavior.

## Can joint attention be taught?

Researchers at the University of California, San Diego Autism Research Laboratory, have shown success in training autistic children to engage in joint attention (pointing, showing, and shifting their gaze) and to initiate joint attention behaviors (pointing to share an experience, rather than to request something).

The lack of joint or shared attention with others is one of the earliest symptoms of autistic disorders. Shared attention involves a process of sharing another's experience of looking at an object or observing an event, and is felt to be crucial to later language development and the ability to engage in play and social interactions.

At the end of the experiment and at follow-up, the children were engaging in joint attention behaviors and showing enjoyment when doing so. And they were demonstrating their newfound skills not just with the experimenters but with other adults in a wide variety of settings.

## Helping pre-schoolers with ASD

Researchers at Dalhousie University, IWK Health Centre and Mount Saint Vincent University have teamed up to develop educational materials for early childhood educators to promote development in young children with autism.

The training package, *Supporting Children with Autism in Child Care Settings*, includes video, print and web-based materials developed by specialists in psychology, speech-language pathology, occupational therapy, early intervention and early childhood education. They provide information on autism together with training in specific principles and practices that are known to be effective in promoting the development of young children with autism with a focus on ways to incorporate these practices in child care settings.

Copies of the materials may be available on loan from your local autism society, public library or special needs resource lending library. Information regarding purchase is available on-line at [http://www.msvu.ca/child\\_youth/coeei/work\\_autism\\_sample.asp](http://www.msvu.ca/child_youth/coeei/work_autism_sample.asp).

**Go to [www.cairn-site.com](http://www.cairn-site.com) for more information on evidence-based interventions to help children with autism spectrum disorders.**



Canadian Autism Intervention Research Network

We'd like to hear from you.

Send your comments to [info@cairn-site.com](mailto:info@cairn-site.com) or write to:

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