

# Autism Spectrum Disorders: Effective Treatments from an Evidence Based and Personal View

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- Department of Educational Psychology
  - University of Utah

# Disclosure

*School Psychology Program*

*University of Utah*

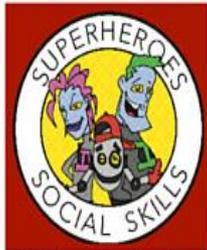


# Autism Training Grant

Grant # H325K12306

US Office of Education, Personnel Preparation Project

## Superheroes Social Skills Training, Rethink Autism Internet Intervention, Parent Training, Evidence-based Practices Classroom Training, Functional Behavior Assessment: An Autism Spectrum Disorder, Evidence-based Practices Training Track for School Psychologists



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The Autism Training Grant is designed to provide students in the School Psychology program at the University of Utah to be proficient in up-to-date evidence based practices in early assessment, interventions, and parent training/coaching for students with Autism Spectrum Disorders (ASD). The primary focus of training will be to train 40 masters level school psychologists to be experts in the assessment, diagnosis, and interventions for students with ASD. The range of age

will encompass ASD students from pre-school to the later ages of educational eligibility. All levels of student functioning will be addressed in the specialty track training. In addition, the intervention model will encompass a Positive Behavior Supports/Response to Intervention (PBS/RTI) model for intervention.



Students running Superheroes at UNI 2012



Superheroes Party at Uni 2013

ASD is the fastest growing psychiatric disability category in the United States and the state of Utah has the highest reported incidence of autism in the US population. Increasing numbers of children with autism and the cost of their education are important factors in establishing need for this training grant. However, the critical need for children, families, and society is based on the long term outcome for individuals with ASD. This is especially true if nothing or little is done early in a child's life. Individuals with ASD have some of the poorest long term outcomes of any childhood psychiatric disability. A clear shortage has been demonstrated for school psychologists with specialized training in the ASD area. At the consultant and direct service level in public schools, the shortage of qualified school psychologists is a chronic issue indicating the utility of a training grant with a focus on ASD.

The training model will emphasize a background foundation in evidence based practice for students with ASD emphasizing the 24 intervention practices highlighted by the National Professional Development Center. The delivery model will be through a positive behavior support and response to intervention model emphasizing early assessment and diagnoses, conducting functional behavior assessments, ongoing data analysis and IEP goal assessment, classroom applications, specialized social skills training, language and communication interventions, parent training and coaching, and case consultation. Students will participate in classes to provide training in these areas, complete projects to enhance their knowledge in these areas, and practicum experiences to apply their knowledge and training in school and clinical settings.



UNI Superheroes T-shirt 2012

Individuals interested in more information about the Autism Training Grant should contact Dr. William R. Jenson at [bill.jenson@utah.edu](mailto:bill.jenson@utah.edu) or Dr. Julia Hood at [hood.jules@gmail.com](mailto:hood.jules@gmail.com).

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# Keynote Overview

- Apology
- Treatment Focused
- “If you Have Seen One Autistic Child you Have Seen One Autistic Child”-Miller
- Spectrum Disorder
- Evidence Based/Research Validated Procedures
- Long Term Outcome Indicators

# Long Term Follow-Up Studies

- Leo Kanner
- Michael Rutter
- Megan Farley
- Elizabeth Pellicano
- Patricia Howlin
- Ivaar Lovaas
- Rebecca Landa
- Deborah Fein

# Long Term Outcome Indicators

- Cognitive Ability-IQ/Growth
- Language Ability
- Functional Life Skills (Adaptive Behaviors)
- Challenging Behaviors
  - *Aggression*
  - *Severe Noncompliance*
  - *Elopement*
  - *Self-Injury*
  - *Property Destruction*
  - *Obsession, compulsions, and rituals*
- Social Skills/Adjustment \*
- Placement-Parental/Family Involvement \*
- Treatment "Window"

- We were surprised that such a high proportion of the kids' trajectories were stable," says lead investigator Catherine Lord, director of the Institute for Brain Development at New York-Presbyterian Hospital in New York City. "I would have expected more of them to improve, and I would have expected more variability from year to year."

# Treatment Intervention Issues

- Types of Treatment
- Disability vs Autism as a Culture (Neurotypical)
- Onset-Window Issue
- Intensity of Treatment
- Duration
- Generalization of Treatment Effects-Parents
- Individualization of Treatment
- Cost of Treatments
- Availability-Logistics

# This Keynote

- How to Judge EBP Treatments
- Treatments for Social Skills
- Treatments for Self-Injurious Behaviors
- Treatments for Language
- Comprehensive Early Intensive Treatments
- Resources for Treatment Programs

# Chinese Proverb

- A disease without a cure has a thousand treatments



## Interventions for Children and Youth with Autism: Prudent Choices in a World of Exaggerated Claims and Empty Promises. Part I: Intervention and Treatment Option Review

L. Juane Heflin and Richard L. Simpson

This article discusses intervention and treatment options being used with the population of children and youth who have autism spectrum disorders. The discussion includes interventions based on relationship formation, skill-based treatments, physiologically oriented interventions, and comprehensive educational and treatment programs. In a follow-up article, court decisions related to intervention options for students with autism are discussed, along with recommendations for choosing interventions and treatments that have the best chance of producing desired outcomes.

As originally suggested by Kanner (1943), the enigmatic nature of autism is notable. Persons with autism experience difficulty relating to other people and situations; they present with a variety of speech, language, and communication impairments; many have an obsessive insistence on environmental sameness; they often engage in stereotypic, repetitive, and other self-stimulatory responses; and it is common for persons with autism to manifest aberrant responses to sensory stimuli (American Psychiatric Association, 1994; Rivo & Freeman, 1978). At the same time, however, they often have histories of normal physical growth and development, and some children and youth with autism and pervasive developmental disorders (PDD) have highly developed splinter skills and other isolated unique abilities (Berkeid, 1992). The fact that individuals with autism have a wide range of abilities and disabilities, with some

having near- or above-average cognitive and language abilities, further contributes to the mystery of autism (Myles & Simpson, 1998).

The onset of autism and PDD occurs early in life, and the prognosis for persons with the disorder is generally considered to be poor (Bristol et al., 1996). Nevertheless, there are numerous interventions and treatments for the disorder, some of which are associated with claims of a cure (Lovaas, 1987). Indeed, there is fierce debate over which intervention option holds the most promise for persons with autism. Some of these intervention programs appear to have little sound theoretical or empirical foundation (Bikken, 1993); some have been shown to lack efficacy (Koenig & Koegel, 1995; Simpson & Myles, 1995); some have not been thoroughly evaluated (Freeman, 1993); and even methods based on empirically sound foundations are involved in controversies related to

outcome claims and exclusive and extensive use (Gresham & MacMillan, 1997). The list of intervention options for children and youth with autism is ever increasing, and this serves only to exacerbate the problem of professionals' and parents' abilities to choose the most efficient and effective treatment methods.

This article focuses on the aforementioned lack of consensus regarding which intervention methods for persons with autism hold the most promise. Specifically, we discuss a variety of intervention and treatment programs and methods for children and youth with autism and PDD, including our opinion and analysis of the literature related to these methods. Included in this review are methods and procedures based on establishing interpersonal relationships, skill-based treatments, physiologically oriented interventions, and comprehensive treatment and educational programs. Our comments are limited to a relatively brief overview, along with our recommendation regarding the status of the procedure (i.e., "best practice," "experimental," and so forth).

In a follow-up article, we discuss court decisions related to choosing interventions for students with autism along with guidelines and recommendations for selecting efficacious and efficient interventions and treatment programs.

# AUTISM AWARENESS NIGHT

## *Featured Speakers:*

**Chitra Bhakta, M.D., APC**

California Integrative Hyperbaric Center,  
International Hyperbaric Assoc. Medical Advisor

*Defeat Autism Now!*

**Sherman B. Johnson, M.D., CWS**

Medical Director,  
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6:00 - 8:00 p.m.**

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## A History of Facilitated Communication

*Science, Pseudoscience, and Antiscience*

*Science Working Group on Facilitated Communication*

John W. Jacobson  
James A. Mulick

*Independent Living in the Capital District, Inc.  
Departments of Pediatrics and Psychology, The Ohio  
State University*

Allen A. Schwartz

*Schenectady, NY*

## Facilitated Communication FrontLine

*Facilitated communication (FC) is a method of assisting people with severe developmental disabilities to communicate. Before its adoption as a teaching-treatment technique, the only research evidence in support of its validity consisted of a small number of descriptive reports in the professional literature and anecdotal reports in the popular press and disability media. In use, this technique, which involves providing physical support to people with disabilities as they type out messages on a keyboard or letterboard, appears to result in unexpected literacy and to disclose normative or superior intellectual skills among people with lifelong histories of severe developmental delay. Controlled research using single and double blind procedures in laboratory and natural settings with a range of clinical populations with which FC is used have determined that, not only are the people with disabilities unable to respond accurately to label or describe stimuli unseen by their assistants... but that the responses are controlled by the assistants.*

Countless people throughout the world are not able to communicate adequately in speech. They may have cerebral palsy, head injury, or Down syndrome, or may have been diagnosed as having intellectual disability or autism. Intelligence tests based on expressive language underestimate their capacities, and because they cannot express their language they are often thought not to possess it. Their thoughts, ideas, needs, and desires go unspoken. They are trapped in a wordless prison. . . . In facilitated communication training, communication partners provide these people with physical support to help them overcome their neuromotor problems and develop functional movement patterns that will allow them to use communication aids. (*Teachers College Press* [sales brochure], 1994, p. 1)

**F**acilitated communication (FC) is a method, or group of methods, for providing assistance to a nonverbal person in typing letters, words, phrases, or sentences using a typewriter, computer keyboard, or alphabet facsimile. FC involves a graduated manual prompting pro-

cedure, with the sufficiently to maintain (Mulick, Jarman manual prompting hazard of influenza facilitator). The "unexpected literacy" (Biklen, 1990, 1992a, 1992b), revealed through age normative or superior communication content, syntax, and fluency (Crossley, 1994). This result is all the more remarkable because the typical individual using this procedure has a lifelong and unambiguous history of autism or moderate to profound mental retardation, or both, and is nonverbal. Since its introduction in the United States only five years ago, FC has become the eye of a growing storm of controversy. The most vexing questions concern the source of the communications generated with facilitation: Is the facilitator unwittingly selecting the letters that spell out the message? Or, is it true that FC can unlock hidden intellectual competence and reveal a massive misunderstanding of human potential by the developers and users of intelligence tests and developmental evaluations?

More confounding, however, is that, in the absence of scientific evidence of its validity and effectiveness (Fed-

*Editor's note:* Frances Degan Horowitz served as action editor for this article.

*Author's note:* Development of this article was supported in part by The Ohio State University, the APA Science Directorate, and Division 33, Mental Retardation and Developmental Disabilities, of the APA. In particular, the authors wish to acknowledge the support of Brian A. Gladue, Ph.D., of the APA Science Directorate. The perspectives, interpretations, and conclusions presented here do not necessarily represent the policies of these organizations.

Correspondence concerning this article should be addressed to John W. Jacobson, Independent Living in the Capital District, Inc., 2660 Albany Street, Schenectady, New York 12305.

## Facilitated Communication: Rejected in Science, Accepted in Court—A Case Study and Analysis of the Use of FC Evidence Under *Frye* and *Daubert*

Brian J. Gorman, J.D.\*

This article traces the phenomenon of facilitated communication (FC) from its introduction to the United States in 1990 to its use in recent court proceedings. FC is an aged breakthrough technique that enables nonverbal individuals with developmental disabilities to communicate via a form of assisted typing. Widespread use of FC resulted in miraculous communications and surprising allegations of abuse. The growing importance and notoriety of FC attracted the interest of the scientific community which rejected the technique after numerous controlled studies were undertaken. Despite the rejection of FC by the scientific community, however, some courts have accepted this unproven technique by evading their state's test of scientific admissibility. It is asserted that court decisions admitting FC evidence are pretextual, and it is argued that FC should not be admitted into court proceedings. In addition, this report analyzes the future of FC in those states that have adopted the newer *Daubert* standard for scientific evidence. Copyright © 1999 John Wiley & Sons, Ltd.

### THE FC PHENOMENON

In August of 1990, Professor Douglas Biklen of Syracuse University introduced a revolutionary breakthrough in the United States that allegedly enabled 90 percent<sup>1</sup>

\* Correspondence to: Brian J. Gorman, Law Guardian Bureau, Legal Aid Society of Suffolk County, Cohalan Court Complex, 400 Carleton Avenue, P.O. Box 9082, Central Islip, New York 11722-9082, USA. Email address: gormanbrian@hotmail.com

I would like to thank Holly Marcille, Dr. Laurie Stephens, Dr. Scott Yarbrough, and Karen Kasch for their helpful comments. I am also especially indebted to Professor Michael L. Perlin for providing invaluable insight and guidance.

<sup>1</sup> See Mary Makarushka, *The Words They Can't Say*, N.Y. TIMES, Oct. 6, 1991, at 33. "Biklen says his experience at the school, and that of others, indicates that facilitation could be used successfully for more than 90 percent of the 350,000 autistic people in America." *Id.*

# Evidence Based Practice Standards

# Characteristics of Well Established Treatments APA-Division 12/53

- At least two group designed experiments or a series of single subject design studies
- Superior to control group
- Well defined sample/diagnosis
- Random assignment of subjects
- Two independent research settings
- Reliable and valid outcome measures
- Appropriate statistical analysis-power-effect sizes
- Manualized

# How Can We Assess What is Effective in the Education of Tough Kids?

- Anecdotal reports/personal experiences
- Workshops
- Popular articles, books, local and national news
- Research papers
- Reviews of research
- ***Meta-analysis***

# National Autism Center's National Standards Report

- Reviews by recognized experts
- Structured rating systems (Scientific Merit Rating Scale)-
- Articles Review-7,038 with 775 Further Study

There are four categories.

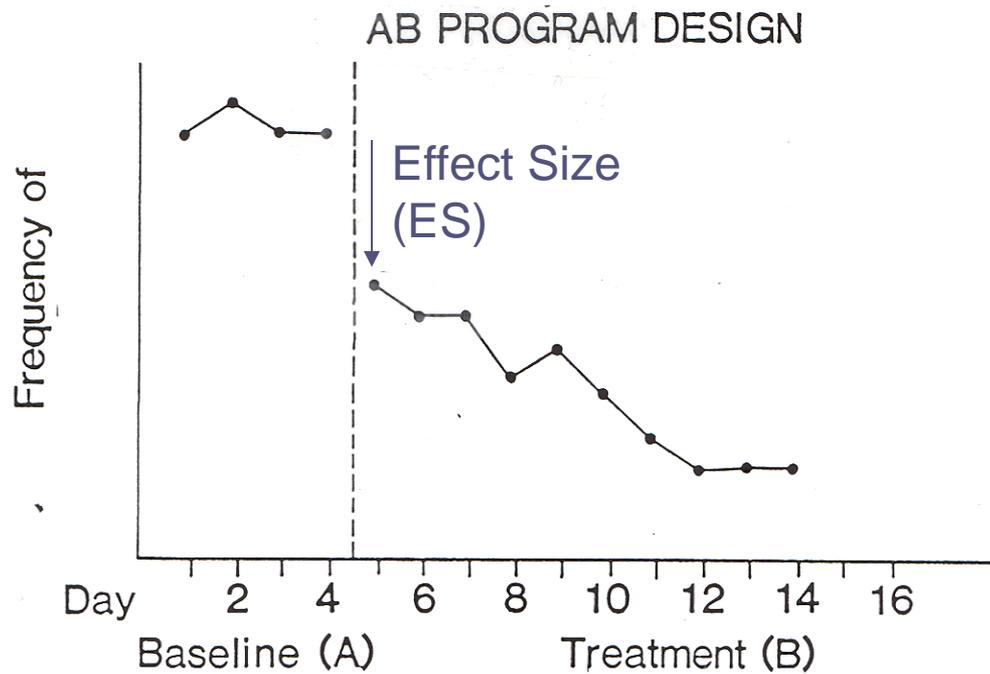
- ■Established
- ■Emerging
- ■Unestablished
- ■Ineffective/Harmful

Overlap Between Evidence-Based Practices Identified by the National Professional Development Center (NPDC) on ASD and the National Standards Project (NSP)

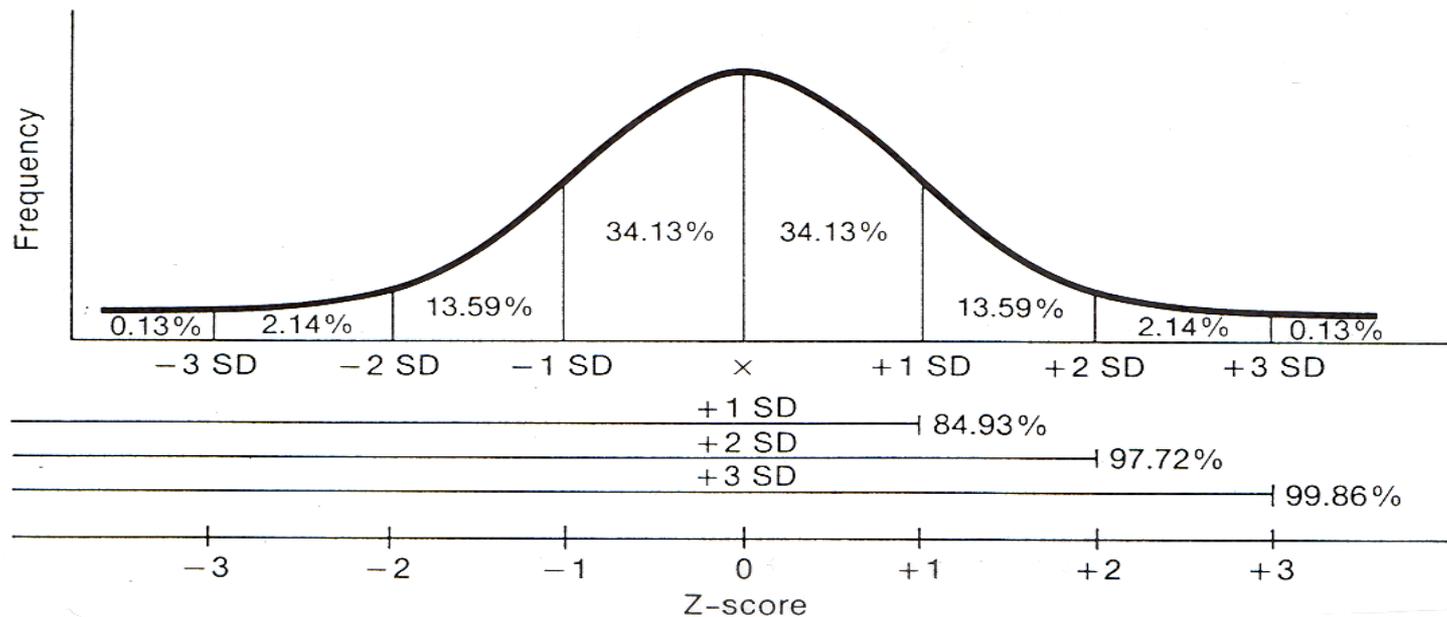
Evidence-Based Practices Identified by the National Professional Development Center (NPDC) on ASD	Established Treatments Identified by the National Standards Project (NSP)										
	Antecedent Package	Behavioral Package	Story-based Intervention Package	Modeling	Naturalistic Teaching Strategies	Peer Training Package	Pivotal Response Treatment	Schedules	Self-Management	Comprehensive Behavioral Treatment for Young Children	Joint Attention Intervention
Prompting	X			X						The NPDC on ASD did not review comprehensive treatment models. Components of The Comprehensive Behavioral Treatment of Young Children overlap with many NPDC-identified practices.	The NPDC on ASD considers joint attention to be an outcome rather than an intervention. Components of joint attention interventions overlap with many NPDC-identified practices.
Antecedent-Based Intervention	X										
Time delay	X										
Reinforcement		X									
Task analysis		X									
Discrete Trial Training		X									
Functional Behavior Analysis		X									
Functional Communication Training		X									
Response Interruption/Redirection		X									
Differential Reinforcement		X									
Social Narratives			X								
Video Modeling				X							
Naturalistic Interventions					X						
Peer Mediated Intervention						X					
Pivotal Response Training							X				
Visual Supports								X			
Structured Work Systems								X			
Self-Management									X		
Parent Implemented Intervention	The NSP did not consider parent-implemented intervention as a category of evidence-based practice. However, 24 of the studies reviewed by the NSP under other intervention categories involve parents implementing the intervention.										
Social Skills Training Groups	Social Skills Training Groups (Social Skills Package) was identified as an emerging practice by the NSP.										
Speech Generating Devices	Speech Generating Devices (Augmentative and Alternative Communication Device) was identified as an emerging practice by the NSP.										
Computer Aided Instruction	Computer Aided Instruction (Technology-based Treatment) was identified as an emerging practice by the NSP.										
Picture Exchange Communication	Picture Exchange Communication System was identified as an emerging practice by the NSP.										
Extinction	Extinction (Reductive Package) was identified as an emerging practice by the NSP.										

# What is a Meta-Analysis?

- Used in medicine: colon and prostate cancer, hair dye, coronary heart disease, blood pressure treatments, anti-depressants medications, stimulant medication, substance abuse risk after taking stimulants
- Special review of research literature that reduces bias
- Before investigator starts
  - Define a number of years 10 to 20 generally
  - Problem area (special education)
  - Subjects (children)
  - Type of treatments
  - Then collect research articles
  - Then do the analysis-compare pretreatment baselines to treatments



All Baseline averages are different-Z score transformation sets them all at zero



## 1 is the Magic Number

One = 85% better than non-treated controls

0 = no change

.2 small change

.5 medium change

.8 large change

1 = very large change

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Saturday, August 15th [Nantucket, MA](#)

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SEARCH

## What We've Learned About Autism

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# New Meta-analysis Confirms: No Association between Vaccines and Autism

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**Analysis of 10 studies involving more than 1.2 million children reaffirms that vaccines don't cause autism; MMR shot may actually decrease risk**

May 19, 2014





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Me Methodology

### Cochrane Database of Systematic Reviews : Issue 7 of 12, July 2015

Issue [updated daily](#) throughout month

There are 28 results from 8978 records for your search on 'autism in Title, Abstract, Keywords in Cochrane Reviews'

Pages 1 - 25 | 26 - 28

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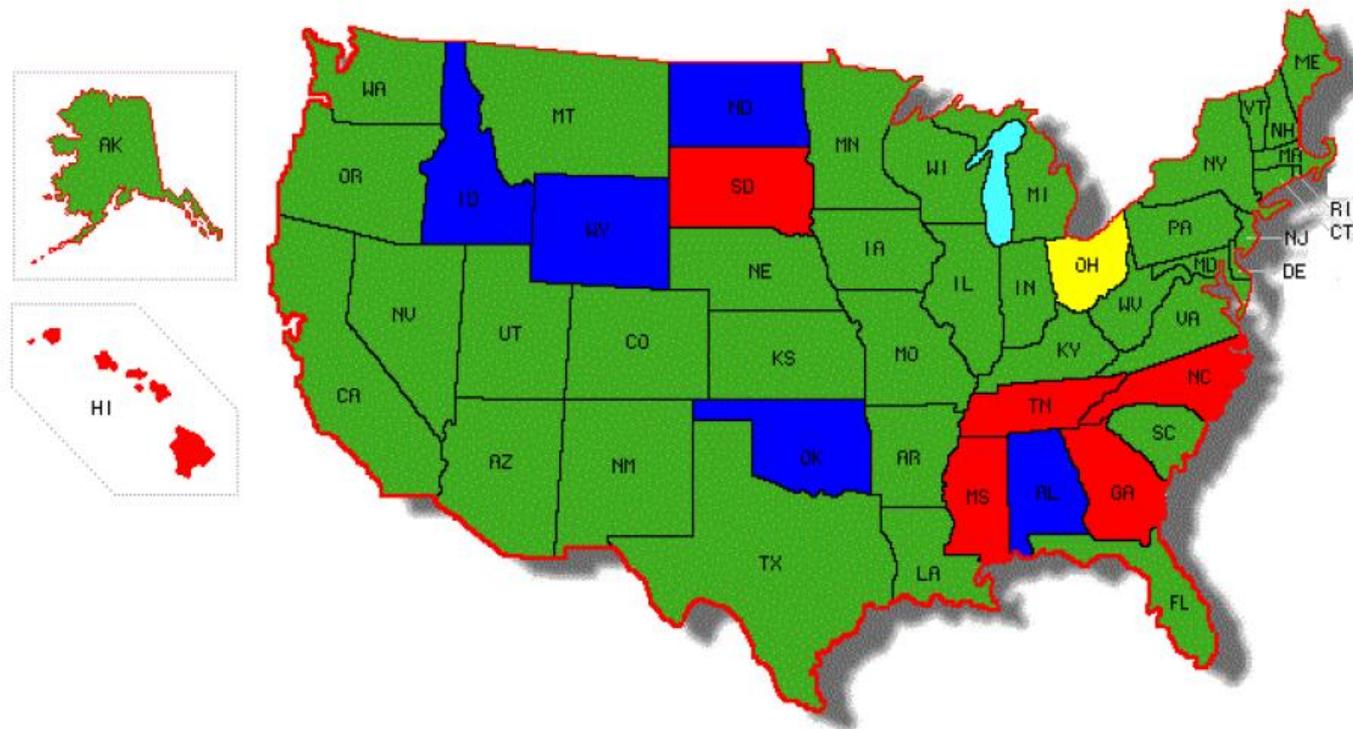
[Combined vitamin B6-magnesium treatment in autism spectrum disorder](#)  
Chad Nye and Alejandro Brice  
Online Publication Date: October 2005

Review

[Interventions based on the Theory of Mind cognitive model for autism spectrum disorder \(ASD\)](#)  
Sue Fletcher-Watson , Fiona McConnell , Eirini Manola and Helen McConachie  
Online Publication Date: March 2014

Review

[Risperidone for autism spectrum disorder](#)



<b>States with Autism Insurance Reform Laws (38) + DC</b>	<b>States with Endorsed Autism Insurance Reform Bills</b>	<b>States Pursuing Autism Insurance Reform</b>	<b>States Not Pursuing Insurance Reform Legislation</b>
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# Treatment

**A Field of Dreams  
One Every Six Months!**



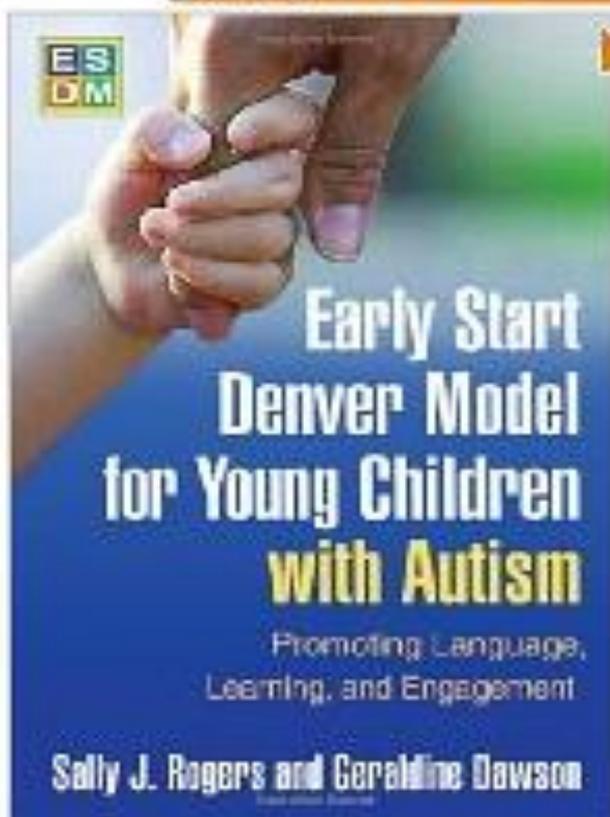
# Types of Treatments

## Social-Developmental Treatment Approaches (Play Approaches)-Developmental Stage Assessment

- Floor Time-Greenspan
- Play Project- Solomon
- Relationship-Developmental Intervention RDI-Gutstein
- Social Communication, Emotional Regulation, Transactional Support SCERTS -Rubin
- Denver Early Start Model-Rogers



Click to **LOOK INSIDE!**



# Early Start Denver Model

- Published online November 30, 2009  
PEDIATRICS (doi:10.1542/peds.2009-0958)
- **Randomized, Controlled Trial of an Intervention for Toddlers With Autism: The Early Start Denver Model**
- **Geraldine Dawson, PhD<sup>a,b,c</sup>, Sally Rogers, PhD<sup>d</sup>, Jeffrey Munson, PhD<sup>e,f</sup>, Milani Smith, PhD<sup>e</sup>, Jamie Winter, PhD<sup>e</sup>, Jessica Greenson, PhD<sup>e</sup>, Amy Donaldson, PhD<sup>g</sup> and Jennifer Varley, MSe**
- Objective To conduct a randomized, controlled trial to evaluate the efficacy of the Early Start Denver Model (ESDM), a comprehensive developmental behavioral intervention, for improving outcomes of toddlers diagnosed with autism spectrum disorder (ASD).
- Methods Forty-eight children diagnosed with ASD between 18 and 30 months of age were randomly assigned to 1 of 2 groups: (1) ESDM intervention, which is based on developmental and applied behavioral analytic principles and delivered by trained therapists and parents for 2 years; or (2) referral to community providers for intervention commonly available in the community.
- Results Compared with children who received community-intervention, children who received ESDM showed significant improvements in IQ, adaptive behavior, and autism diagnosis. Two years after entering intervention, the ESDM group on average improved 17.6 standard score points (1 SD: 15 points) compared with 7.0 points in the comparison group relative to baseline scores. The ESDM group maintained its rate of growth in adaptive behavior compared with a normative sample of typically developing children. In contrast, over the 2-year span, the comparison group showed greater delays in adaptive behavior. Children who received ESDM also were more likely to experience a change in diagnosis from autism to pervasive developmental disorder, not otherwise specified, than the comparison group.
- Conclusions This is the first randomized, controlled trial to demonstrate the efficacy of a comprehensive developmental behavioral intervention for toddlers with ASD for improving cognitive and adaptive behavior and reducing severity of ASD diagnosis. Results of this study underscore the importance of early detection of and intervention in autism.
- **Key Words:** autism • behavioral intervention • cognitive function • developmental outcomes • early intervention
- **Abbreviations:** RBS, Repetitive Behavior Scale

# Types of Treatments

- Applied Behavior Analysis Treatments (Task Analysis Approaches to Language, Social Skills, Adaptive Behaviors-Functional Behavior Assessment based)
  - UCLA Young Autism Project (Ivar Lovaas)
  - Autism Partnership (Ron Leaf & John McEachin)
  - New England Center for Autism (William Ahern)
  - May Institute
  - Kendall Center-Therapeutic Pathways (Jane Howard-Gina Green)
  - Pivotal Response Training (Robert Koegel)

# ABA Specific Programs

- Social Skills
- Functional Life Skills Training
- Language
- Challenging Behaviors

# ASD and Social Skills Training

# A Meta-Analysis of School-Based Social Skills Interventions for Children With Autism Spectrum Disorders

SCOTT BELLINI, JESSICA K. PETERS, LAUREN BENNER, AND ANDREA HOPF

## ABSTRACT

Social skills deficits are a central feature of autism spectrum disorders (ASD). This meta-analysis of 55 single-subject design studies examined the effectiveness of school-based social skills interventions for children and adolescents with ASD. Intervention, maintenance, and generalization effects were measured by computing the percentage of non-overlapping data points. The results suggest that social skills interventions have been minimally effective for children with ASD. Specific participant, setting, and procedural features that lead to the most effective intervention outcomes are highlighted, and implications for school personnel are discussed. Finally, the results are compared to the outcomes of similar meta-analyses involving social skills interventions with other populations of children.

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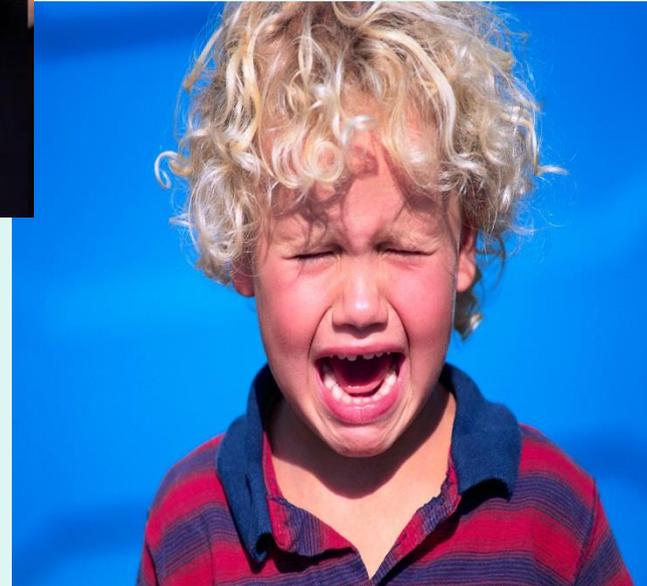
**I**MPAIRMENT IN SOCIAL FUNCTIONING IS A CENTRAL feature of autism spectrum disorders (ASD) and has been well documented in the literature (Attwood, 1998; Myles et al., 2005; Rogers, 2000). Thus, individuals with ASD have difficulty communicating with others, processing and integrating information from the environment, establishing and sustaining social relationships with others, and participating in new environments. Specific social skills deficits include difficulties with initiating interactions, maintaining reciprocity, sharing enjoyment, taking another person's perspective, and inferring

the interests of others. Although social skills deficits are a central feature of ASD, few children receive adequate social skills programming (Hume, Bellini, & Pratt, 2005). This is a troubling reality, especially considering that the presence of social impairments may portend the development of more detrimental outcomes, such as poor academic achievement, social failure and peer rejection, anxiety, depression, substance abuse, and other forms of psychopathology (Bellini, 2006; La Greca & Lopez, 1998; Tantam, 2000; Welsh, Park, Widaman, & O'Neil, 2001). Most important, social skills deficits impede one's ability to establish meaningful social relationships, which often leads to withdrawal and a life of social isolation. Social skills are critical to successful social, emotional, and cognitive development. As such, effective social skills programming should be an integral component of educational programming for children with ASD.

## SOCIAL SKILLS INTERVENTIONS FOR CHILDREN WITH ASD

A number of qualitative reviews have examined the effectiveness of social skills interventions for children with ASD (Hwang & Hughes, 2000; McConnell, 2002; Rogers, 2000). Hwang and Hughes (2000) reviewed 16 studies involving social skills programming for children with ASD between the

# ***No Adult Talking Heads Talking About Social Skills***



# A Meta-Analysis of School-Based Social Skills Interventions for Children With Autism Spectrum Disorders

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## ABSTRACT

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## Social Skills Programs are Ineffective When They Are Taught In Isolation From non-ASD Peers

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social relationships with others, and participating in new environments. Specific social skills deficits include difficulties with initiating interactions, maintaining reciprocity, sharing enjoyment, taking another person's perspective, and inferring

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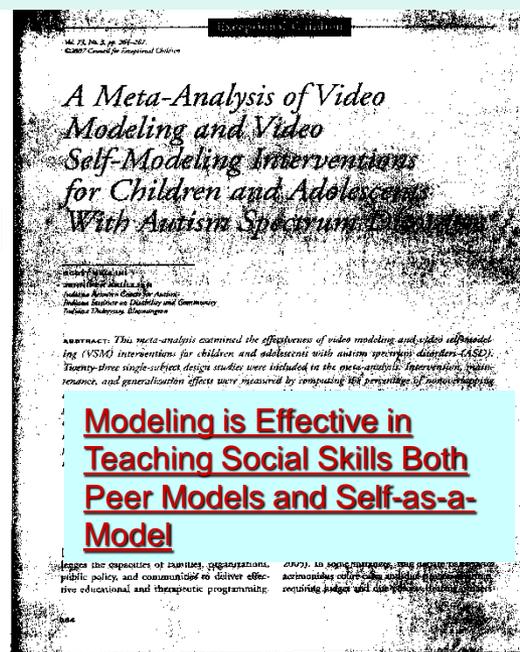
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REVIEW AND SPECIAL EDUCATION 153  
Volume 38, Number 3, May/June 2007, Pages 153-162

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## INTERVENTIONS TARGETING RECIPROCAL SOCIAL INTERACTION IN CHILDREN AND YOUNG ADULTS WITH AUTISM SPECTRUM DISORDERS: A META-ANALYSIS

by  
Lindsay A. Miller

## Peers Teach Social Skills Better Than Adults

Doctor of Philosophy

Department of Educational Psychology

The University of Utah

May 2006

## Effects and Implications of Self-Management for Students With Autism: A Meta-Analysis

Suk-Hyang Lee, Richard L. Simpson, and Karris A. Shogren

Self-management for students with autism is important both as a management tool and as a means to enhance students' quality of life by empowering them to control their own behavior. This article reports the results of an examination of the efficacy of self-management for increasing appropriate behavior of children and youth with autism. Single-subject research using self-

these purportedly useful methods have neither empirical nor logical foundation has been particularly problematic (Dillen, 1994). Many professionals and parents enthusiastically support and create unvetted or limited-efficacy interventions due to the mystifying nature of children with autism and the

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in the use of

## Self-Management Helps in Teaching Social Skills Especially Self-Recording

Children and youth diagnosed with autism related disabilities are clearly an enigmatic and challenging group, despite critical and noteworthy advancements in understanding and educating them. Children and youth with autism are described generally as having social interaction excesses and deficits, as well as speech, language, and communication difficulties and behavior anomalies (American Psychiatric Association, 2000). These individuals have diverse and multifaceted needs and a wide range of skills and abilities (Simpson, Hagiwara, & Cook, 2003), and unique and idiosyncratic characteristics are common among them (Autism Society of America, 2005).

Self-management—including self-monitoring, self-assessment, self-observation, self-recording, self-evaluation, self-instruction, and self-reinforcement—is particularly well suited for its transportability and generalizability (Baer, 1984; Broecker & Shapiro, 1985; McDonnell, 1991, 1998), and there is general consensus that these methods are potentially useful tools for learners with disabilities (Bierbrich & Morgan, 2004; McDonnell, 1998), including children and youth with autism (Baer, Broecker, & Shapiro, 1985; Turrell, Turrell, Shank, Smith, & Teal, 2002; Wehmeyer & Shogren, in press).

Self-management strategies empower students to control their own behavior instead of relying on parent or teacher

# The Major Problem with Social Skills Is:

- **THE PROBLEM IS GENERALIZATION**
- Transfer of newly learned behaviors and skills into settings in which the intervention procedures have not been implemented

# **SUPERHERO SOCIAL SKILLS!**

**Evidence  
Based**

**HIGH FUNCTIONING  
AUTISM/ASPERGER'S**



**Fun**

**Sticky**

**UNIVERSITY OF UTAH!**

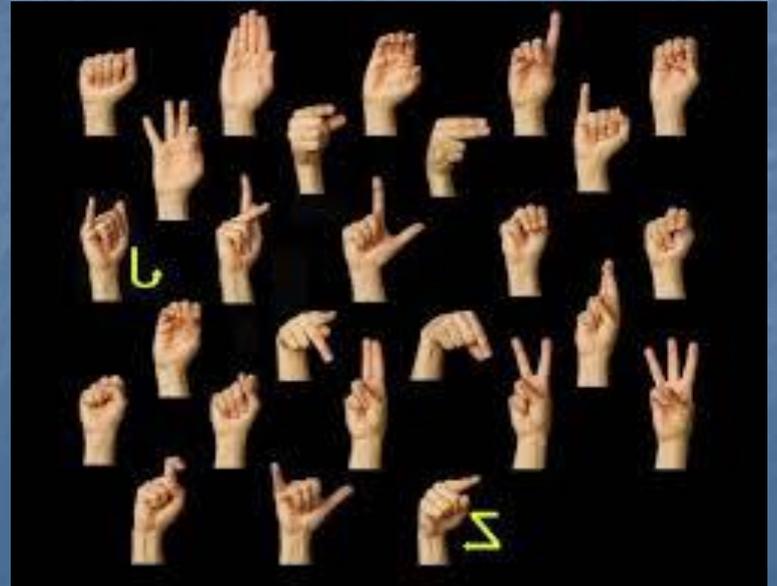
**Pacific Northwest Publishing**

# Language

- Total Communication-ASL & Verbal Pronunciation of the Word
- Picture Exchange Communication System-Bondy
- Verbal Behavior-Sundberg
- Augmentative Communication-Instrumentation

# Total Communication

- **Autism and Meta Analysis**
- **submitted by Lisa Goldy, graduate student at the University of Utah**
- **April 2008**



## **Meta-Analysis Results**

The goal of consolidating and analyzing the available research is that effective interventions may be identified which can help lead to better practices. Parents, teachers, clinicians and care providers, in addition to individuals with autism, stand to benefit from systematic evaluations of the treatment modalities available for increasing functional communication skills in children with autism. The results of this researcher's meta-analysis affirm that total communication, combining sign language with speech, is a highly effective strategy for increasing functional communication skills in children and young adults with autism. In fact, individuals who received total communication interventions experienced larger treatment gains than individuals who received other interventions. Children classified as nonverbal at the commencement of an intervention ultimately made the most significant treatment gains as measured by mean effect size (a common metric which allows for comparison among treatment interventions). This should provide hope for individuals working with children with autism, being that nonverbal children do have the capacity to develop some functional communication skills in the form of sign language. Additionally, children with autism and moderate mental retardation have the ability to acquire sign language

# Picture Exchange Communication System PECS





ELSEVIER

Contents lists available at SciVerse ScienceDirect

## Research in Developmental Disabilities

Research  
in  
Developmental  
Disabilities

## Meta-analysis of PECS with individuals with ASD: Investigation of targeted versus non-targeted outcomes, participant characteristics, and implementation phase

Jennifer B. Ganz<sup>a,\*</sup>, John L. Davis<sup>a</sup>, Emily M. Lund<sup>a</sup>, Fara D. Goodwyn<sup>a</sup>, Richard L. Simpson<sup>b</sup>

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<sup>b</sup>University of Kansas, United States

### ARTICLE INFO

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Aided AAC

Communication skills

Social skills

Interventions

Meta-analysis

Picture Exchange Communication System

### ABSTRACT

The Picture Exchange Communication System (PECS) is a widely used picture/icon aided augmentative communication system designed for learners with autism and other developmental disorders. This meta-analysis analyzes the extant empirical literature for PECS relative to targeted (functional communication) and non-targeted concomitant outcomes (behavior, social skills, and speech) for learners with autism, learners with autism and intellectual disabilities and those with autism and multiple disabilities. Effect size analyses were done using the Improvement Rate Difference method, an advanced metric. Effect sizes were independently analyzed for targeted and non-targeted outcomes, student age, learner disability, and number of phases in the PECS protocol acquired by learners. Results supported the judgment that PECS is a promising intervention method. Analysis also revealed that functional communication outcomes associated with the PECS protocol were most impacted, that preschool children and those with autism generally showed the strongest training effects, and that in general students who advanced through the most PECS protocol phases had the best outcomes.

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### 1. Introduction

# Augmentative Communication





and has been opened read-only to prevent modification.

J Autism Dev Disord (2012) 42:60–74

DOI 10.1007/s10803-011-1212-2

ORIGINAL PAPER

## A Meta-Analysis of Single Case Research Studies on Aided Augmentative and Alternative Communication Systems with Individuals with Autism Spectrum Disorders

Jennifer B. Ganz · Theresa L. Earles-Vollrath ·  
Amy K. Heath · Richard I. Parker ·  
Mandy J. Rispoli · Jaime B. Duran

Published online: 5 March 2011

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**Abstract** Many individuals with autism cannot speak or cannot speak intelligibly. A variety of aided augmentative and alternative communication (AAC) approaches have been investigated. Most of the research on these approaches has been single-case research, with small numbers of participants. The purpose of this investigation was to meta-analyze the single case research on the use of aided AAC with individuals with autism spectrum disorders (ASD). Twenty-four single-case studies were analyzed via an effect size measure, the Improvement Rate Difference (IRD). Three research questions were investigated concerning the overall impact of AAC interventions on targeted behavioral outcomes, effects of AAC interventions on individual targeted behavioral outcomes, and effects of

three types of AAC interventions. Results indicated that, overall, aided AAC interventions had large effects on targeted behavioral outcomes in individuals with ASD. AAC interventions had positive effects on all of the targeted behavioral outcome; however, effects were greater for communication skills than other categories of skills. Effects of the Picture Exchange Communication System and speech-generating devices were larger than those for other picture-based systems, though picture-based systems did have small effects.

**Keywords** Autism spectrum disorders · Augmentative and alternative communication · Aided AAC · Communication skills · Social skills · Interventions · Meta-analysis · Voice output communication aid · Speech-generating device · Picture Exchange Communication System

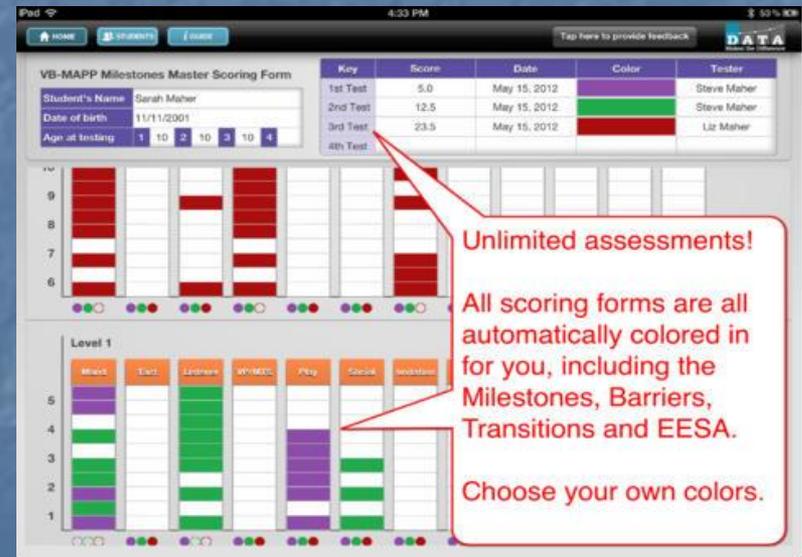
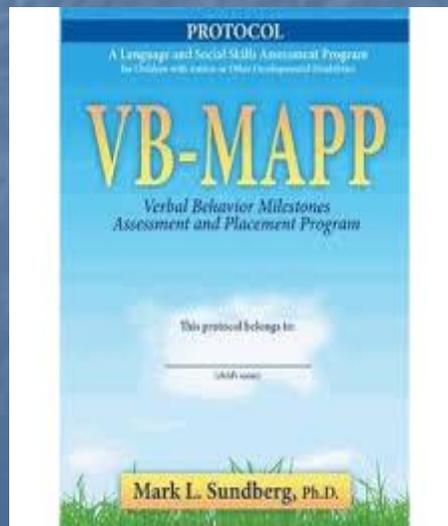
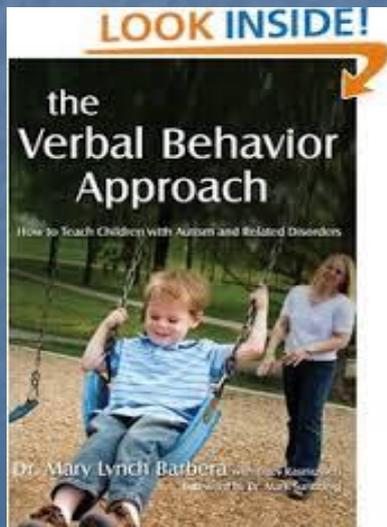
The results of this meta-analysis were presented at the 2010 Applied Behavior Analysis International Annual Convention in San Antonio, TX.

J. B. Ganz · A. K. Heath · R. I. Parker ·  
M. J. Rispoli · J. B. Duran  
Texas A&M University, College Station, TX, USA

Individuals who cannot effectively use conventional speech to communicate may use augmentative and alter-

# Verbal Behavior-Sundberg

- No meta-analyses
- Limited Review Papers



# Analysis of Verbal Behavior for Children With Autism

MARK L. SUNDBERG

*Behavior Analysts, Inc.*

JACK MICHAEL

*Western Michigan University*

**There have been several major advances** in the behavioral treatment of children with autism since the publication of the initial study by Wolf, Risley, and Mees (1964). The majority of these advances are attributable to the development and maturing of the field of applied behavior analysis and to the extensive work of Ivar Lovaas and his students (e.g., Koegel, Russo, & Rincover, 1977; Leaf & McEachin, 1998; Lovaas, 1977, 1981; Lovaas, Koegel, & Schreibman, 1979; Lovaas & Smith, 1989; Schreibman & Carr, 1978). Much has been learned about the disorder from behavior analysis and this exceptional line of research. For example, early and intensive intervention is essential, behavioral techniques can be quite effective, and the pri-

# Challenging Behaviors

- Resources



CHAPTER 33

Interventions for Challenging Behaviors

ROBERT E. O'NEILL, WILLIAM R. JENSON, AND KEITH C. RADLEY

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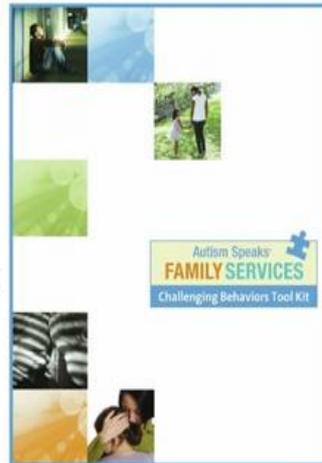
**REFERENCES** 834

## Challenging Behaviors Tool Kit

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Sometimes the difficulties of autism can lead to behaviors that are quite challenging for us to understand and address. Most individuals with autism will display challenging behaviors of some sort at some point in their lives. Autism Speaks has created this Challenging Behaviors Tool Kit to provide you with strategies and resources to address these behaviors, and to help support you and your loved one with autism during these difficult situations.

The guiding principle used in developing this kit is that each individual with autism and his family should feel safe and supported, and live a healthy life filled with purpose, dignity, choices, and happiness. With this in mind, positive approaches and suggestions are highlighted throughout the kit. The general framework and intervention principles included are relevant at any stage of life, and we have included basic background information, with links to further information and resources on a variety of topics.



[Click here to download the Challenging Behaviors Tool Kit.](#)

*The kit is broken into different sections. You may want to read the kit in its entirety or work through a section at a time:*

[Why is Autism Associated with Aggressive and Challenging Behaviors?](#)

# Self-injurious Behavior

- It is estimated in about 10% of autistic individuals
- It exists on a continuum of damage
- Self-injurious behavior includes head banging, biting, chin butting, eye gouging, hair pulling, etc.
- Basically two types of self-injurious behavior
- Some self-stimulatory behavior evolve into self-injurious behaviors
- Others are motivated by escape

Derrick

# Effectiveness of Interventions Targeting Self-Injury in Children and Adolescents with Developmental Disabilities

Elizabeth Christiansen

# Inclusion Criteria

- Developmental Disability
- 12 months to 21 years, 11 months
- Self-injury
- Published articles or dissertations
- English
- 1965-2008
- Sufficient information to calculate ES
- Single-subject design study
- Graph displaying baseline & treatment data
- 224 Studies with 224 Subjects

## Question 4

To what extent do ESs differ from zero, and does Type of Treatment account for any variability among ESs?

Non-Aversive	-2.33	(-1.58 to -3.08)
Aversive	-3.67**	(-2.70 to -4.64)
Communication	-3.32	(-1.43 to -5.21)
Sensory Stimulation	-.89	(1.79 to -3.57)
Non-Aversive & Aversive	-4.19***	(-3.10 to -5.28)
Aversive & Communication	-2.91	(-.45 to -5.37)

\*\* $p < .01$

\*\*\* $p < .001$

Moderator Variable	<i>N</i>	Mean Effect Size
<b>Diagnosis/Classification</b>		
DD/ID/MR	152	-3.62*
Autism Spectrum (with or without ID/MR)	47	-2.40
Genetic Disorders/Syndromes	25	-3.51
<b>Gender</b>		
Male	128	-3.16
Female	96	-3.59
<b>SIB Type</b>		
Head Banging	47	-2.22
Self-Hitting/Slapping	23	-2.79
Self-Biting	33	-3.41
Hand-Mouthing	14	-3.82
Multiple	86	-3.42
Other	21	-4.55*
<b>Language</b>		
Verbal	14	-3.15
Nonverbal	77	-3.50
Not Indicated	133	-3.22
<b>Sensory Impairment</b>		
Visually Impaired/Blind	31	-4.33*
Hearing Impaired/Deaf	8	-4.37
Combination	21	-3.39
Not Indicated	164	-3.11
<b>Ambulation</b>		
Ambulatory	9	-3.99
Nonambulatory	38	-3.79
Not Indicated	177	-3.22
<b>Pretreatment Functional Assessment</b>		
Functional Behavior Assessment	14	-4.05
Functional Analysis	77	-3.31
None/Not Indicated	133	-3.30
<b>Treatment Type</b>		
Nonaversive	58	-2.33
Aversive	94	-3.67**
Communication	11	-3.32
Sensory Stimulation	7	-.89
Combination: Nonaversive & Aversive	46	-4.19***
Combination: Aversive & Communication	8	-2.91
<b>Implementer</b>		
Professional	175	-3.32
Teacher	24	-3.14
Parent	9	-3.78
Combined	10	-3.48
Other	3	-3.18
Not Identified	3	-5.47

# ABA Comprehensive Early Intervention Programs



# Basic Assumptions (Green & Smith)

- Integrated developmental and behavioral approaches
- Emphasis on positive reinforcement
- Use of functional behavior assessment-ABC Model
- Depends on the scientific method to evaluate its effectiveness
- Emphasizes the collection of measureable and observable data
- Individualization of goals and instructional procedures
- Gradual systematic progression from simple to more complex
- Emphasizes transfer from structured to more natural settings
- Emphasizes the training of parents and others to implement the procedures

# Types of Teaching Methods

- Discrete trial training
  - Separate trial training- onset and offset
- Loosely structured teaching
  - Similar to DTT but looser in presentation and structure
- Incidental teaching
  - Teacher sets up environment and then encourages child to respond "What do you want"
- Free operant instruction
  - Teacher reinforces and discourages behaviors in a free ranging environment. Nothing is set up. It is spontaneous
- Behavioral Skills Training (Modeling)
  - Teacher gives an instruction, models the behavior, have child model the behavior, and then reinforce the child

# Early Intensive ABA Comprehensive Programs



# Early ABA Years-Pingree

The image shows a screenshot of a web browser displaying the homepage of the Carmen B. Pingree Autism Center of Learning. The browser's address bar shows the URL <https://carmenbpingree.com>. The website header features the center's logo, which includes a butterfly icon and the text "Carmen B. Pingree Autism Center of Learning™" and "A SPECIALTY SERVICE OF VALLEY". Below the header is a blue navigation bar with the following menu items: "Home", "Our Services", "Our Classrooms", and "About Us". The main content area features a large photograph of a young child and an adult smiling together. A blue text box is overlaid on the bottom left of the photograph, containing the text "A learning and support".

File Edit View History Bookmarks Tools Help

Home | Carmen B. Pingree Cen... x +

← <https://carmenbpingree.com> Search ☆ 📁 📧 ⬇️ YouTube 🏠 📍 😊 ☰

Carmen B. Pingree   
**Autism Center of Learning™**  
A SPECIALTY SERVICE OF VALLEY

Home Our Services Our Classrooms About Us

A learning and support

## *Carmen B. Pingree School for Autistic Children-Core Management/Discrete Trial Programs*

- “Get Ready” Program
- Following Directions Program
- Generalized Imitation Program
- Visual Tracking of Therapist or Instructional Materials

# Early Programs with ASD Children

- Generalizability-Stimulus Overselectivity
- Cost
- Utilization of Peers
- Parent Involvement

- ASD Children in the Pingree Program

# But Are ABA Programs Like This Effective



# Reviews and Meta-Analyses

- Roth (2014)
- Bishop-Fitzpatrick (2013)
- Strauss 2013
- Peters-Scheffer (2011)
- Makrygianni (2010)
- Virue-Oretega (2010)
- Eldevik (2009)

*Journal of Clinical Child & Adolescent Psychology*, 38(3), 439–450, 2009  
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ISSN: 1537-4416 print/1537-4424 online  
DOI: 10.1080/15374410902851739



## Meta-Analysis of Early Intensive Behavioral Intervention for Children With Autism

Signund Eldevik

*School of Psychology, Bangor University; Faculty of Behavioral Science,  
Akershus University College; and Highfield Centre*

Richard P. Hastings and J. Carl Hughes

*School of Psychology, Bangor University*

Erik Jahr

*Akershus University Hospital*

Svein Eikeseth

*Faculty of Behavioral Science, Akershus University College*

Scott Cross

*Lovaas Institute for Early Intervention*

A systematic literature search for studies reporting effects of Early Intensive Behavioral Intervention identified 34 studies, 9 of which were controlled designs having either a comparison or a control group. We completed a meta-analysis yielding a standardized mean difference effect size for two available outcome measures: change in full-scale intelligence and/or adaptive behavior composite. Effect sizes were computed using Hedges's *g*. The average effect size was 1.10 for change in full-scale intelligence (95% confidence interval = .87, 1.34) and .66 (95% confidence interval = .41, .90) for change in adaptive behavior composite. These effect sizes are generally considered to be large and moderate, respectively. Our results support the clinical implication that at present, and in the absence of other interventions with established efficacy, Early Intensive Behavioral Intervention should be an intervention of choice for children with autism.

# Early Comprehensive Behavioral Interventions For Children With Autism: A Meta-analysis

A thesis presented to the faculty of the University of Utah

Will Backner

# Results

- The 9 studies were added to the 16 early intensive behavioral intervention studies from Hourmanesh (2006) for a total of 25 included studies.
- Number of participants
  - Cognitive skills 740
  - Language skills 289
  - Adaptive functioning 775
  - Lovaas Identified vs Non-Lovass ABA Studies
  - Community Programs vs University Based Programs

Research Question 3: *To what extent do the composite effect sizes differ by treatment type (e.g., Lovass method and ABA)?*

*Treatment Type as Moderator Variable for Cognitive Skills*

Design	# of studies	Effect Size	95% CI	$Q_w$
Lovaas Treatments	13	0.60	0.42 to 0.78	25.70*
ABA Treatments	10	0.67	0.51 to 0.83	16.30
Overall	23	0.64	0.52 to 0.76	42.32**

Note:  $Q_B(1) = 0.33, p = 0.57$

\*  $p < 0.05$

\*\*  $p < 0.01$

*Treatment Type as Moderator Variable for Language Skills*

Design	# of studies	Effect Size	95% CI	$Q_w$
Lovaas Treatments	8	0.73	0.49 to 0.97	8.30
ABA Treatments	4	1.00	0.61 to 1.39	4.81
Overall	12	0.80	0.60 to 1.01	14.49

Note:  $Q_B(1) = 1.38, p = 0.24$

No  $Q$  values were significant.

*Treatment Type as Moderator Variable for Adaptive Skills*

Design	# of studies	Effect Size	95% CI	$Q_w$
Lovaas Treatments	9	0.44	0.24 to 0.63	11.74
ABA Treatments	7	0.21	0.08 to 0.35	21.05*
Overall	16	0.28	0.17 to 0.40	36.25*

Note:  $Q_B(1) = 3.46, p = 0.06$

\*  $p < 0.01$

# Additional Analyses

- Community Directed Versus University Directed Treatment

*Community Versus University Direction as Moderator Variable for Cognitive Skills*

Design	# of studies	Effect Size	95% CI	$Q_w$
Community Directed	13	0.50	0.36 to 0.65	26.65*
University Directed	10	0.98	0.76 to 1.21	3.39
Overall	23	0.64	0.52 to 0.76	42.32*

Note:  $Q_B(1) = 12.28, p = 0.001$

\*  $p \leq 0.01$

*Community Versus University Direction as Moderator Variable for Language Skills*

Design	# of studies	Effect Size	95% CI	$Q_w$
Community Directed	6	0.64	0.33 to 0.95	3.04
University Directed	6	0.93	0.66 to 1.21	9.52
Overall	12	0.80	0.60 to 1.01	14.49

Note:  $Q_B(1) = 1.92, p = 0.17$

Note: No  $Q$  values were significant.

*Community Versus University Direction as Moderator Variable for Adaptive Skills*

Design	# of studies	Effect Size	95% CI	$Q_w$
Community Directed	10	0.21	0.09 to 0.34	17.20
University Directed	6	0.60	0.34 to 0.86	12.28
Overall	16	0.28	0.17 to 0.40	36.25*

Note:  $Q_B(1) = 6.77, p = 0.01$

\*  $p \leq 0.01$

# ABA is Effective But Today What are the Issues?

- Cost- \$50,000-\$100,000
- Trained Implementers
- Logistics and Availability
- Generalization
- Pingree Center now Has 200 Children on Their Waiting List



# Online CURRICULUM

for Students with Autism

A Product of



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A leader in autism research and education

The ACE is the premier educational system for learners with autism. Our educational package provides BCBA's and Special Educators the ability to assess, teach and evaluate progress using evidence based procedures. This online package was developed by **The New England Center for Children**, the only **non-profit** school offering an online curriculum.



1 INTRODUCTION

2 ASSESS

3 TEACH

4 EVALUATE

FEATURED



Learn Independence



The All in One Educational System for

ACE 4.0 Coming Soon!



# rethink

The first choice for inclusive education.

# Rethink Autism

- On-Line web based program
- 1500 individual ABA written programs with instructional videos
- General training modules-discrete trials, reinforcing, shaping, data collection
- Individual assessment program-prescribes individual ABA programs
- Data collection system which monitors child's progress and graphs the data
- Downloadable parent resources
- Monthly cost of a cell phone bill



"Rethink has met a need for our district on many levels - students, parents, staff and administration ... providing quality, data-driven programming in support of our students."

Dawn Netzel, Supervisor of Pupil-Special Services, Edison Township Schools

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# ABC Evening News and Rethink Autism

# Rethink Autism Site

- <http://www.rethinkautism.com/>



### Training Activity

	Total	Within Date Range
Lesson Videos Watched:	541	321
Lesson Plans Printed:	1338	248
Lesson Materials Printed:	1287	1257
Training Video Watched:	616	379
Training Center Tests Complete:	791	498
Training Center Notes Printed:	137	137
Unique Team Members:	128	108



### Student Activity

	Total	Within Date Range
Activities Played:	14	14
Total Activity Time:	46:42	46:42
Questions Correct/ Questions Attempted	178/197	178/197
Data Points Captured:	19	19
Unique Students:	6	6



### Data Collection

	Total	Within Date Range
Students With Data:	129	97
Data Points Collected:	156169	81031
Unique Team Members:	33	29



### Student Progress

	Total	Within Date Range
Targets Mastered:	11371	6782
Objectives Mastered:	1906	1858
Goals Mastered:	2193	690
Unique Students:	117	95

School



Student Progress

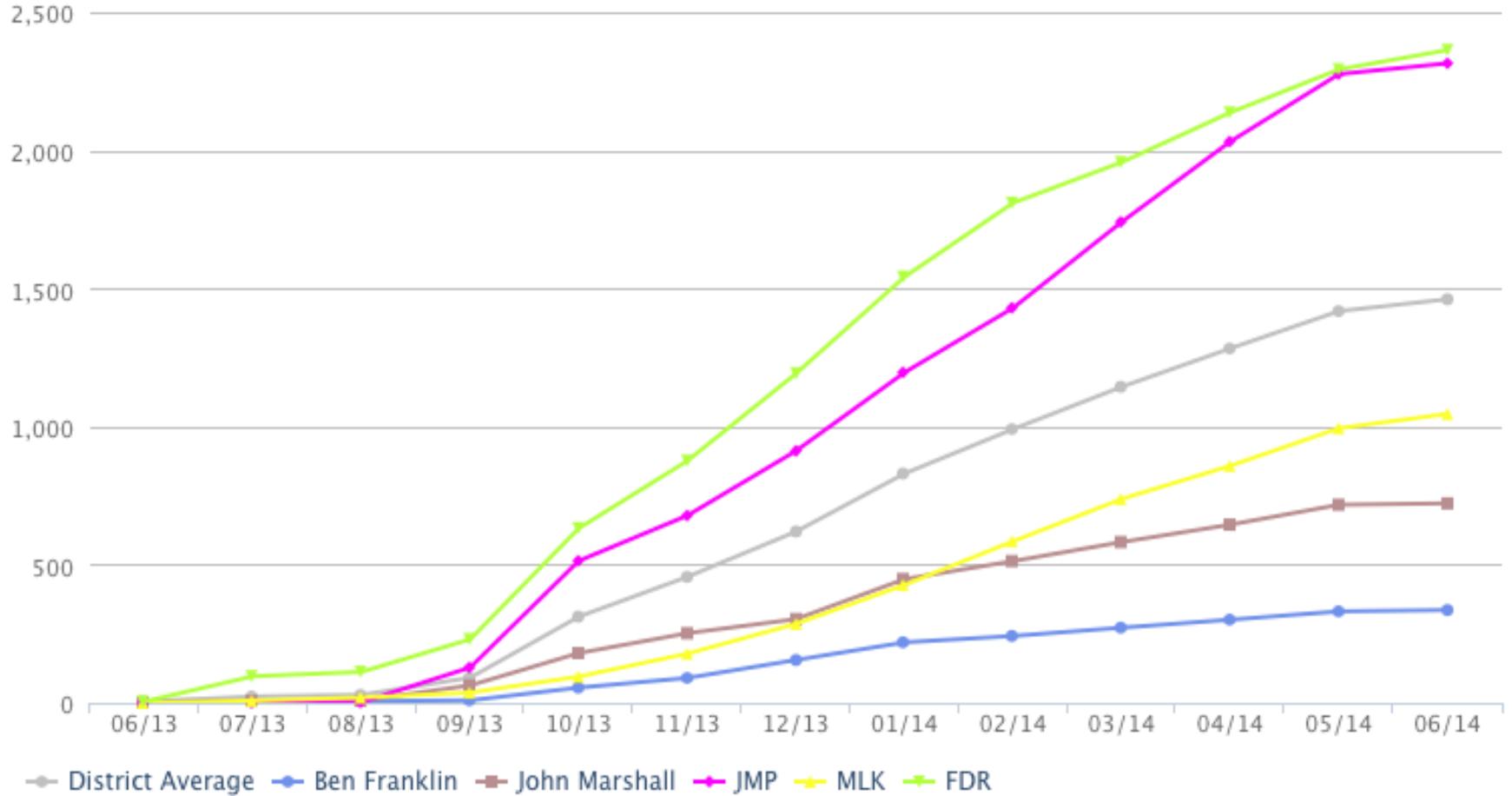
Targets



Total



Average Per Student



Date Range: 06/25/2013 - 06/25/2014

## Services for the waiting list with consultation/in-home services



## Functional skills curriculum that extends to age 22



## Training videos for parents and new staff





- Grant Supported Parent Working with Their Child
- Generalization to Families-Grandmothers
- Use SKYPE Consultation with Graduate Students (training)
- Wait List Parents-Treatment Window
- Rural ASD Children and Their Families

# Summary-MY Top Ten EBP Issues and Treatments

- Seen One ASD Children You Then Have Seen One ASD Child-Individualize Intervention
- Understand There is a Treatment Window-Do Not Delay
- Understand The Long Term Outcome Issues
- Know the EBP Standards
- Pick a Language Program that is EBP based-multiple approaches
- Pick a Social Skills Program that is EBP Based and Generalization Focused
- Pick a Functional Life Skills Program that is EBP Based-If a Non-ASD Child Doesn't Do it Regularly than it is Probably not Practical or Useful
- Intervene Quickly for Severely Disruptive Challenging Behaviors-Multiple Methods, Timely, Function Based (FBAs)
- Functional Behavior Assessment- Timely and Lead to Practical and Specific Intervention Recommendations
- Families and Parents are Your Best Generalization Resource