

ASD ADVISORY COMMITTEE MEETING

Wednesday, January 6 , 2021 3:00 - 5:00 pm

AHCCCS – Virtual Meeting

Join Zoom Meeting

<https://ahcccs.zoom.us/j/6313342545?pwd=N01CekRVbXVFYUJWY29Cc1VRU2Rodz09>

Meeting ID: 631 334 2545

Passcode: s%B0pPG3

Time	Topic	Presenter
3:00 pm	Welcome and Introductions	Barbara Brent, Facilitator
3:10 pm	AHCCCS Update <ul style="list-style-type: none"> ● COVID-19 ● Telehealth ● Dashboard 	Sara Salek, M.D. AHCCCS Chief Medical Officer
3:35 pm	DDD Health Plan Changes Update	Mary DeCarlo, M.Ed., BCBA, LBA Licensed Behavior Analyst Department of Economic Security Division of Developmental Disabilities
3:55 pm	Evidence Based Practice	Terry Matteo, Ph.D
4:05 pm	Reflections – Advisory Council and Agency Achievements <ul style="list-style-type: none"> ● Early Identification and Diagnosis ● Evidence-Based Treatment ● Reducing System Complexity ● Increasing Network Capacity ● Adults with ASD 	Barbara Brent Megan Woods, DBH, LBA, BCBA AHCCCS System of Care Administrator
4:20 pm	2021 and Beyond Vision Building on Accomplishments	Barbara Brent Sara Salek
4:40 pm	Additional Issues, Announcements, and Future Agenda Topics	Barbara Brent
5:00 pm	Adjourn 2021 Meeting Schedule: January 6th, April 7th, July 7th, October 6th	Barbara Brent



ASD Advisory Committee

January 6, 2021

ASD Advisory Committee Agenda

- ❖ Welcome, Introductions and Guidelines for Today's Meeting: Barbara Brent
- ❖ AHCCCS Updates: Dr. Sara Salek
 - COVID-19 Update
 - Telehealth Update
 - Dashboard
- ❖ DDD Health Plan Changes Update: Mary Decarlo
- ❖ Evidence Based Practice: Dr. Terry Matteo
- ❖ Reflections: Barbara Brent, Dr. Megan Woods & Rohno Geppert
- ❖ Vision for this Committee: 2021 and Beyond: Barbara Brent & Dr. Sara Salek
- ❖ Additional Issues, Announcement, and Future Agenda Topics: Barbara Brent

AHCCCS Update

Dr. Sara Salek
Chief Medical Officer
AHCCCS



Arizona AHCCCS COVID-19 RESPONSE

COVID-19 Response Effort

Where do I find the latest information about COVID-19?

- AHCCCS updates the FAQ document daily to reflect the latest guidance for providers, members and plans
- Please find guidance at: <https://azahcccs.gov/AHCCCS/AboutUs/covid19FAQ.html>



COVID-19 Information

AHCCCS is responding to an outbreak of respiratory illness, called COVID-19, caused by a novel (new) coronavirus. Health officials urge good hand washing hygiene, covering coughs, and staying home if you are sick.

On March 11, Governor Doug Ducey issued a [Declaration of Emergency](#)  and an [Executive Order](#)  regarding the COVID-19 outbreak in Arizona, and subsequent [Executive Orders](#)  with further administrative actions.

On March 17, 2020, AHCCCS [submitted a request](#) to the Centers for Medicare and Medicaid Services (CMS) to waive certain Medicaid and KidsCare requirements in order to ensure ongoing access to care over the course of the COVID-19 outbreak. As of March 23, AHCCCS has received federal approval to implement programmatic changes to help ensure access to health care for vulnerable Arizonans.

To address Medicaid-related questions from providers and contractors about COVID-19, AHCCCS has developed a list of Frequently Asked Questions Regarding Coronavirus Disease 2019 (COVID-19), updated regularly as more information becomes available.

[COVID-19 FAQs](#)

Learn how to protect yourself and stop the spread of COVID-19. Visit azdhs.gov/COVID19  and cdc.gov/COVID19 .

If you are an AHCCCS member who is experiencing flu-like symptoms, please call the 24-hour Nurse Line for your health plan (listed below):

24-Hour Nurse Line Numbers by Health Plan

Health Plan

Nurse Line Number



ENHANCED BY Google



Advanced search

HOME	AHCCCS INFO	MEMBERS/APPLICANTS	PLANS/PROVIDERS	AMERICAN INDIANS	RESOURCES	FRAUD PREVENTION	CRISIS?
------	-------------	--------------------	-----------------	------------------	-----------	------------------	---------

Home / Resources / Waiver / Pending Waivers / This Page

▼ Oversight of Health Plans

▲ Governmental Oversight

Federal and State Requirements

Legislative Sessions

Waiver



PCH SNCP Technical Amendment

COVID-19 Federal Emergency Authorities Request

IMD Waiver Amendment

SB 1092 Legislative Directive Waiver Proposal

American Indian Initiatives

Mental Health Parity

County Acute Care Contributions

Grants

Hospital Finance & Utilization Information

Health Plan Report Card

COVID-19 Federal Emergency Authorities Request

On March 17 and March 24, 2020, the Arizona Health Care Cost Containment System (AHCCCS) submitted requests to the Administrator for the Centers for Medicare and Medicaid Services (CMS) to waive certain Medicaid and KidsCare requirements to enable the State to combat the continued spread of 2019 novel coronavirus (COVID-19). AHCCCS is seeking a broad range of emergency authorities to:

- Strengthen the provider workforce and remove barriers to care for AHCCCS members
- Enhance Medicaid services and supports for vulnerable members for the duration of the emergency period
- Remove cost sharing and other administrative requirements to support continued access to services

Arizona's request to CMS is posted below:

- Letter To CMS Administrator on COVID-19 Flexibilities (submitted March 17, 2020)
- Summary of Additional COVID-19 Flexibility Requests (submitted March 24, 2020)
- Summary of Additional COVID-19 Flexibility Requests (submitted April 17, 2020)

Status of AHCCCS Emergency Authority Requests (updated Aug. 6, 2020)

CMS approved components of Arizona's request under the 1135 Waiver, Appendix K and State Plan:

- CMS 1135 Waiver Approval Letter for COVID-19 Flexibilities (received March 23, 2020)
- CMS Medicaid Disaster Relief State Plan Amendment (SPA) Approval (received April 1, 2020)
- CMS 1115 Waiver Appendix K Approval Letter (received April 6, 2020)
- CMS 1115 Waiver Approved Appendix K Document (received April 6, 2020)
- CMS Medicaid Disaster Relief State Plan Amendment (SPA) Approval, #2 (received April 9, 2020)
- CMS CHIP Disaster Relief State Plan Amendment (SPA) Approval (received April 24, 2020)
- CMS 1135 Waiver Approval Letter for COVID-19 Flexibilities (received May 6, 2020)
- CMS Medicaid Disaster Relief State Plan Amendment (SPA) Amendment #3 (received May 22, 2020)
- CMS 1135 Waiver Approval Letter for COVID-19 Flexibilities (received July 9, 2020)

The allowances from CMS grant broad authority to Arizona to tailor changes to best serve its citizens. AHCCCS will make decisions about how and when these changes will be implemented.

AHCCCS will pursue the extension of some of the flexibilities granted (updated 7/21/2020) during the public health emergency.



Resources

AHCCCS COVID-19 Vaccine Video:

<https://ahcccsnews.azahcccs.gov/covid-19-vaccine-video-provides-current-info/>

Telehealth Update

Clinical Dashboard

Link to the Dashboard -

<https://azahcccs.gov/Resources/Reports/dashboards.html>

DDD Update

Mary DeCarlo, M.Ed., BCBA, LBA

Licensed Behavior Analyst

Department of Economic Security

Division of Developmental Disabilities



DEPARTMENT OF ECONOMIC SECURITY

Your Partner For A Stronger Arizona



Division of Developmental Disabilities



DEPARTMENT OF ECONOMIC SECURITY

Your Partner For A Stronger Arizona



Behavioral Health Administration

DDD Behavioral Health Administration and Chief Medical Office

Our team includes:

- Chief Medical Officer/Pediatrician- Dr. Mark Wilson
- Medical Director/ Psychiatrist – Dr. Christina Underwood
- Behavioral Health Administrator /Psychologist- Dr. Susanne Arnold
- Board Certified Behavior Analyst (BCBA) – Mary DeCarlo
- Pharmacist – Dr. Anthony Branham
- 2 Behavioral Health Managers- Tyrone Peterson and Melissa Essig
- 8 District Behavioral Health Complex Care Specialists



DEPARTMENT OF ECONOMIC SECURITY

Your Partner For A Stronger Arizona



Behavior Analysis Services

DDD Integrated Care Plans

Effective October 1, 2019, the Division of Developmental Disabilities entered into contracts with two health plans to provide physical and behavioral health services and Children's Rehabilitative Services to DDD and ALTCS eligible members residing across every Arizona county. The health plans allow each person who is enrolled a choice of a primary care provider. The Division's contracted health plans are:

- UnitedHealthcare Community Plan
- Mercy Care Plan

AHCCCS AMPM 320-S

- Policy establishes requirement for Behavior Analysis Service delivery and treatment
- Policy covers Medicaid members in need of behavioral treatment *regardless* of age and diagnosis



AHCCCS MEDICAL POLICY MANUAL
SECTION 320 – SERVICES WITH SPECIAL CIRCUMSTANCES

320-S - BEHAVIOR ANALYSIS SERVICES

EFFECTIVE DATE: 11/01/19, 10/01/20

APPROVAL DATES: 08/07/19, 05/07/20

I. PURPOSE

This Policy applies to ACC, ALTCS E/PD, DCS/CMDP (CMDP), DES/DDD (DDD), and RBHA Contractors; Fee-For-Service (FFS) Programs including: American Indian Health Program (AIHP), Tribal ALTCS, TRBHAs; and all FFS providers, excluding Federal Emergency Services (FES). (For FES, see AMPM Chapter 1100). This Policy establishes requirements for Behavior Analysis Service delivery and treatment.

Behavior Analysis Utilization Data

Report Item	Total
Number of Members with a diagnosis of ASD who have been approved	721
Number of DD members without a diagnosis of ASD who have been approved	55
Number of hours, on average for direct therapy for all members (97153)	1514.06
Number of hours, on average of supervision provided for all members (97155 and 97158)	177.89
Number of members who are receiving comprehensive intervention (25-40 hours) (Quarter 3)	245
Number of members over the age of 9 who are receiving comprehensive intervention (Qtr 3)	57
Number of members who are receiving focused intervention (less than 25 hours) (Qtr 3)	340

* Quarter 3 Data from 10/15/ 2020



DEPARTMENT OF ECONOMIC SECURITY

Your Partner For A Stronger Arizona



FAQs

Outpatient BH clinic enrollment

- Is it required that a member enroll with an outpatient behavioral health provider to receive ABA services, even if that outpatient provider clinic is not the entity who is providing those services?
 - There is no requirement from either health plan, but enrollment is recommended for coordination of care and identifying/assessing additional services and supports

Prior Authorization Requirements

- What are the prior authorization requirements for Behavior analysis services through UHC and MCP?
 - PA is NOT required for initial assessment (codes 97151 and 97152)
 - PA is required for direct treatment and is completed by the ABA provider or the outpatient behavioral health home

DDDs role in determining medical necessity

- What is the Support Coordinators role in determining medical necessity?
 - SC can make the recommendation to the Child and Family Team (CFT) or Adult Recovery Team (ART) for BA services if there is a need
 - The District CCS provides technical assistance to Support Coordinators on navigating BA services for members
 - SC participates in team meetings and can refer families to their health plan member services to find a contracted provider

DDD/ Health Plan/ABA Provider Quarterly Meetings

- DDD hosts quarterly meetings with the contracted health plans and ABA providers to problem solve issues and concerns regarding BA service delivery
- Next scheduled meeting: 1/19/21 from 4:00-5:00 via google meets
 - Email mdecarlo@azdes.gov if you would like to attend

Updates on EBPs for Autism

Terry Matteo, Ph.D

Review of Recent Update from Frank Porter
Graham Center at University of North Carolina –
National Clearinghouse on Autism Evidence and
Practice Review Team - 2020

Table 3.1 Evidence-based practices, definitions, and number of articles across review periods

Evidence-Based Practice	Definition	Empirical Support		
		1990-2011 (n)	2012-2017 (n)	1990-2017 (n)
Antecedent-Based Interventions (ABI)	Arrangement of events or circumstances that precede an activity or demand in order to increase the occurrence of a behavior or lead to the reduction of the challenging/interfering behaviors.	29	20	49
Augmentative and Alternative Communication (AAC)	Interventions using and/or teaching the use of a system of communication that is not verbal/vocal which can be aided (e.g., device, communication book) or unaided (e.g., sign language)	9	35	44
Behavioral Momentum Intervention (BMI)	The organization of behavior expectations in a sequence in which low probability, or more difficult, responses are embedded in a series of high probability, or less effortful, responses to increase persistence and the occurrence of the low probability responses.	8	4	12
Cognitive Behavioral/ Instructional Strategies (CBIS)	Instruction on management or control of cognitive processes that lead to changes in behavioral, social, or academic behavior.	7	43	50
Differential Reinforcement of Alternative, Incompatible, or Other Behavior (DR)	A systematic process that increases desirable behavior or the absence of an undesirable behavior by providing positive consequences for demonstration/non-demonstration of such behavior. These consequences may be provided when the learner is: a) engaging in a specific desired behavior other than the undesirable behavior (DRA), b) engaging in a behavior that is physically impossible to do while exhibiting the undesirable behavior (DRI), or c) not engaging in the undesirable behavior (DRO).	27	31	58
Direct Instruction (DI)	A systematic approach to teaching using a sequenced instructional package with scripted protocols or lessons. It emphasizes teacher and student dialogue through choral and independent student responses and employs systematic and explicit error corrections to promote mastery and generalization.	2	6	8
Discrete Trial Training (DTT)	Instructional approach with massed or repeated trials with each trial consisting of the teacher's instruction/presentation, the child's response, a carefully planned consequence, and a pause prior to presenting the next instruction.	16	22	38
Exercise and Movement (EXM)	Interventions that use physical exertion, specific motor skills/ techniques, or mindful movement to target a variety of skills and behaviors.	6	11	17
Extinction (EXT)	The removal of reinforcing consequences of a challenging behavior in order to reduce the future occurrence of that behavior.	13	12	25
Functional Behavioral Assessment (FBA)	A systematic way of determining the underlying function or purpose of a behavior so that an effective intervention plan can be developed.	11	10	21
Functional Communication Training (FCT)	A set of practices that replace a challenging behavior that has a communication function with more appropriate and effective communication behaviors or skills.	12	19	31
Modeling (MD)	Demonstration of a desired target behavior that results in use of the behavior by the learner and that leads to the acquisition of the target behavior.	10	18	28
Music-Mediated Intervention (MMI)	Intervention that incorporates songs, melodic intonation, and/or rhythm to support learning or performance of skills/behaviors. It includes music therapy, as well as other interventions that incorporate music to address target skills.	3	4	7
Naturalistic Intervention (NI)	A collection of techniques and strategies that are embedded in typical activities and/or routines in which the learner participates to naturally promote, support, and encourage target skills/behaviors.	26	49	75

continued on next page

Table 3.1 Evidence-based practices, definitions, and number of articles across review periods

Evidence-Based Practice	Definition	Empirical Support		
		1990-2011 (n)	2012-2017 (n)	1990-2017 (n)
Parent-Implemented Intervention (PII)	Parent delivery of an intervention to their child that promotes their social communication or other skills or decreases their challenging behavior.	13	42	55
Peer-Based Instruction and Intervention (PBI)	Intervention in which peers directly promote autistic children's social interactions and/or other individual learning goals, or the teacher/ other adult organizes the social context (e.g. play groups, social network groups, recess) and when necessary provides support (e.g., prompts, reinforcement) to the autistic children and their peer to engage in social interactions.	19	25	44
Prompting (PP)	Verbal, gestural, or physical assistance given to learners to support them in acquiring or engaging in a targeted behavior or skill.	55	85	140
Reinforcement (R)	The application of a consequence following a learner's use of a response or skills that increases the likelihood that the learner will use the response/skills in the future.	53	53	106
Response Interruption/Redirection (RIR)	The introduction of a prompt, comment, or other distractors when an interfering behavior is occurring that is designed to divert the learner's attention away from the interfering behavior and results in its reduction.	13	16	29
Self-Management (SM)	Instruction focusing on learners discriminating between appropriate and inappropriate behaviors, accurately monitoring and recording their own behaviors, and rewarding themselves for behaving appropriately.	14	12	26
Sensory Integration* (SI)	Interventions that target a person's ability to integrate sensory information (visual, auditory, tactile, proprioceptive, and vestibular) from their body and environment in order to respond using organized and adaptive behavior.	1	2	3
Social Narratives (SN)	Interventions that describe social situations in order to highlight relevant features of a target behavior or skill and offer examples of appropriate responding.	15	6	21
Social Skills Training (SST)	Group or individual instruction designed to teach learners ways to appropriately and successfully participate in their interactions with others.	18	56	74
Task Analysis (TA)	A process in which an activity or behavior is divided into small, manageable steps in order to assess and teach the skill. Other practices, such as reinforcement, video modeling, or time delay, are often used to facilitate acquisition of the smaller steps.	9	4	13
Technology-Aided Instruction and Intervention (TAII)	Instruction or intervention in which technology is the central feature and the technology is specifically designed or employed to support the learning or performance of a behavior or skill for the learner.	10	30	40
Time Delay (TD)	A practice used to systematically fade the use of prompts during instructional activities by using a brief delay between the initial instruction and any additional instructions or prompts.	16	15	31
Video Modeling (VM)	A video-recorded demonstration of the targeted behavior or skill shown to the learner to assist learning in or engaging in a desired behavior or skill.	35	62	97
Visual Supports (VS)	A visual display that supports the learner engaging in a desired behavior or skills independent of additional prompts.	34	31	65

Table 3.2 Focused intervention practices with some evidence

Current Review: 1990-2017	Description	Evidence	Exclusion
Animal Assisted Intervention	Interventions that incorporate the use of a dog to improve performance of targeted behaviors or skills	Becker et al. (2017)	Insufficient evidence
Auditory Integration Training	Systematic exposure to modulated tones resulting in changes in parent reported problem behavior	Edelson et al. (1999)	Insufficient evidence *No new evidence
Collaborative Model for Promoting Competence and Success (COMPASS) *Previously called Collaborative Coaching	Systematic consultation between parent and teacher and ongoing coaching across the school year to help the team promote achievement of IEP goals utilizing evidence-based practices	Ruble et al. (2010) Ruble et al. (2013)	Only one research group *Some new evidence
Exposure	Increasing (for accelerating behaviors) or decreasing (for decelerating behaviors) the stimulus intensity or conditions to promote the occurrence of the desired response	Bishop et al. (2013) Ellis et al. (2006) Hodges et al. (2017) Seiverling et al. (2012)	Insufficient evidence *Some new evidence
Massage *Previously called Touch Therapy	Systematic massage using moderate pressure on the head/neck, arms/hands, torso, and the legs/feet.	Field et al. (1997)	Insufficient evidence *No new evidence
Matrix Training	Teaching approach that facilitates generalization of taught information to related but untaught information through the arrangement of components of desired skills (e.g., words) along the horizontal and vertical axes of a rectangle, then systematically teaching combinations of components across the resulting matrix	Frampton et al. (2016) MacManus et al. (2015)	Insufficient evidence
Outdoor Adventure	Group camp-style activities that incorporate songs, rope courses, and debriefs focusing on teamwork, trust, communication, facing fears, and self-determination	Zachor et al. (2017)	Insufficient evidence
Perceptual Motor	A series of tasks that target body awareness, motor planning, bilateral motor integration, balance skills, fine motor coordination, functional vision skills, and oral motor skills	Alshari (2012)	Insufficient evidence
Person-Centered Planning	Team-based process for selecting and organizing the services and supports that an individual may need to live in the community directed by the learner	Hagner et al. (2012)	Insufficient evidence
Punishment *See discussion section for commentary on this practice	Consequence that is applied to a behavior that has the effect of reducing the future occurrence of that behavior (e.g. verbal reprimand, response cost)	DeRosa et al. (2016) Dominguez et al. (2014) Dupuis et al. (2015) Pelios et al. (2003)	Insufficient evidence *Some new evidence
Sensory Diet	Sensory based activities integrated into child routines to meet sensory needs	Fazlıoğlu & Baran (2008)	Insufficient evidence *No new evidence
Systematic Transition in Education Programme for Autism Spectrum Disorder (STEP-ASD)	Intervention that supports parents, students, and school teams in individualized planning for and executing the transition from primary to secondary school and addressing related behavioral and emotional issues.	Mandy et al. (2016)	Insufficient evidence

Table 4.1 Comparison of evidence-based practices across review periods

Evidence-Based Practices from 1990-2017	Evidence-Based Practices from 1990-2011	Reason for Change	Manualized Interventions Meeting Criteria (MIMCs)
Antecedent-Based Intervention	Antecedent-Based Interventions		
Augmentative and Alternative Communication		Distinguished from Technology-Aided Instruction and Intervention as a separate practice	PECS®
Behavioral Momentum Intervention			
Cognitive Behavioral/ Instructional Strategies	Cognitive Behavior Intervention	Expanded category to include academic-focused cognitive interventions	
Differential Reinforcement of Alternative, Incompatible or Other Behaviors	Differential Reinforcement of Alternative, Incompatible or Other Behaviors		
Direct Instruction			
Discrete Trial Training	Discrete Trial Training		
Exercise and Movement	Exercise	Expanded category to include mind-body interventions (e.g., yoga)	
Extinction	Extinction		
Functional Behavioral Assessment	Functional Behavioral Assessment		
Functional Communication Training	Functional Communication Training		
Modeling	Modeling		
Music-Mediated Intervention			
Naturalistic Intervention	Naturalistic Intervention		JASPER Milieu Teaching PRT
Parent-Implemented Intervention	Parent-Implemented Interventions		Project ImPACT Stepping Stones Triple P
	PECS®	Moved to <i>Augmentative and Alternative Communication</i> as MIMC	
Peer-Based Instruction and Intervention	Peer-Mediated Instruction/ Intervention	Expanded category to include adult-mediated interventions with peers	
	Pivotal Response Training	Moved to <i>Naturalistic Intervention</i> as MIMC	
Prompting	Prompting		
Reinforcement	Reinforcement		
Response Interruption/ Redirection	Response Interruption/Redirection		
	Scripting	Moved to <i>Visual Supports</i>	
Self-Management	Self-Management		
Sensory Integration®			
Social Narratives	Social Narratives		Social Stories™
Social Skills Training	Social Skills Training		PEERS®
	Structured Play Groups	Moved to <i>Peer-Based Instruction and Intervention</i>	
Task Analysis	Task Analysis		
Technology-Aided Instruction and Intervention	Technology-Aided Instruction and Intervention	NOTE: Speech-Generating Devices were moved to <i>Augmentative and Alternative Communication</i>	FaceSay® Mindreading
Time Delay	Time Delay		
Video Modeling	Video Modeling		
Visual Supports	Visual Supports		

Table 4.2 Recategorization of practices with some evidence from the 1990-2011 review period

1990-2011 Review Period	Categorization for 1990-2017 Review Period	Description
Aided Language Modeling	Augmentative and Alternative Communication	Use of several augmentative and alternative communication strategies (e.g., pointing with finger, sequential pointing, use of communication symbol and vocalization together)
Cooperative Learning Groups	Peer-Based Instruction and Intervention	Academic learning tasks organized around joint activities and goals
Handwriting Without Tears	Modeling, Prompting, and Visual Supports	Multisensory activities promoting fine motor and writing skills
Independent Work Systems	Visual Supports	Organized sets of visual information that inform a learner about participation in an activity; includes clear specification of task(s), signals when task is finished, and a cue for the next activity
Music Intensity	Antecedent-Based Interventions	Different levels of music volume used to affect vocal stereotypy
Reciprocal Imitation Training	Naturalistic Intervention	Therapist or teacher repeats the actions, vocalizations, or other behaviors of the learner to promote learner's imitation and other goals
Schema-Based Strategy Instruction	Cognitive Behavioral/ Instructional Strategies	Cognitive strategy for establishing mental representations to promote addition and subtraction
Self-Regulated Strategy Development Writing Intervention	Cognitive Behavioral/ Instructional Strategies	Instructional package involving explanation of strategy and self-management to teach writing skills
Sentence-Combining Technique	Visual Supports	Instructional package including teacher modeling, student practice, and worksheet to increase adjective use in writing
Test Taking Strategy Instruction	Cognitive Behavioral/ Instructional Strategies	Instructional package involving modeling, mnemonic devices, verbal practice sessions, controlled practice sessions, advanced practice sessions
Theory of Mind Training	Social Skills Treatment	Structured training and practice of using theory of mind skills that includes a parent component
Toilet Training	Antecedent-Based Intervention	Modification of toilet training program developed by Azrin and Foxx (1971)
Touch-Point Instruction	Visual Supports	Tactile and number line materials used to introduce math and numeracy concepts

Name of EBP	Parent-Implemented Intervention (PII)
Definition of EBP	<p>In Parent-Implemented Intervention (PII), parents are the primary person using an intervention practice with their own child. Practitioners teach parents in individual or in group formats in home or community settings. Methods for teaching parents vary, but may include didactic instruction, discussions, modeling, coaching, or performance feedback. The parent's role is to use the intervention practice to teach their child new skills, such as communication, play or self-help, engage their child in social communication and interactions, and/or to decrease challenging behavior. Once parents are trained, they implement all or part of the intervention(s) with their child. Parents are often implementing other EBPs included in this report including naturalistic interventions, video modeling, or social narratives.</p> <ul style="list-style-type: none"> Manualized Interventions Meeting Criteria: Project ImPACT (Improving Parents as Communication Teachers); Stepping Stones Triple P (SSTP)/Primary Care SSTP.

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓	✓	
	Social	✓	✓	✓	✓	✓	
	Joint attention	✓	✓				
	Play	✓	✓	✓			
	Cognitive	✓	✓				
	School readiness			✓			
	Academic/ Pre-academic	✓	✓				
	Adaptive/ self-help	✓	✓	✓	✓		
	Challenging/ Interfering behavior	✓	✓	✓	✓	✓	
	Vocational						
	Motor	✓	✓				
	Mental health	✓	✓	✓	✓		
	Self-determination						

References

- Aldred, C., Green, J., & Adams, C. (2004). A new social communication intervention for children with autism: Pilot randomised controlled treatment study suggesting effectiveness. *Journal of Child Psychology and Psychiatry*, 45(8), 1420-1430. <https://doi.org/10.1111/j.1469-7610.2004.00338.x>
- Bearss, K., Johnson, C., Smith, T., Lecavalier, L., Swiezy, N., Aman, M., McAdam, D.B., Butter, E., Stigliano, C., Minshawi, N., Sukhodolsky, D.G., Mrazek, D.W., Turner, K., Neal, T., Hallett, V., Mulick, J.A., Green, B., Handen, B., Yanhong, D., & Dziura, J. (2015). Effect of parent training vs parent education on behavioral problems in children with autism spectrum disorder. *Journal of the American Medical Association*, 313(15), 1524-1533. <https://doi.org/10.1001/jama.2015.3150>
- Besler, F., & Kurt, O. (2016). Effectiveness of video modeling provided by mothers in teaching play skills to children with autism. *Education Sciences: Theory and Practice*, 16(1), 209-230. <https://doi.org/10.12738/estp.2016.1.0273>

4. *Bradshaw, J., Bearss, K., McCracken, C., Smith, T., Johnson, C., Lecavalier, L., Swiezy, N., & Scahill, L. (2017). Parent education for young children with autism and disruptive behavior: Response to active control treatment. *Journal of Clinical Child and Adolescent Psychology, 47*(S1), S445-S455. <https://doi.org/10.1080/15374416.2017.1381913>
5. Cardon, T. A. (2012). Teaching caregivers to implement video modeling imitation training via iPad for their children with autism. *Research in Autism Spectrum Disorders, 6*(4), 1389-1400. <https://doi.org/10.1016/j.rasd.2012.06.002>
6. Casenhiser, D. M., Binns, A., McGill, F., Morderer, O., & Shanker, S. G. (2015). Measuring and supporting language function for children with autism: Evidence from a randomized control trial of a social-interaction-based therapy. *Journal of Autism and Developmental Disorders, 45*(3), 846-857. <https://doi.org/10.1007/s10803-014-2242-3>
7. Casenhiser, D. M., Shanker, S. G., & Stieben, J. (2013). Learning through interaction in children with autism: Preliminary data from asocial-communication-based intervention. *Autism, 17*(2), 220-241. <https://doi.org/10.1177/136236311422052>
8. Chermensky, C., Lucyshyn, J. M., & Olson, D. L. (2013). Implementation of a culturally appropriate positive behavior support plan with a Japanese mother of a child with autism: An experimental and qualitative analysis. *Journal of Positive Behavior Interventions, 15*(4), 242-253. <https://doi.org/10.1177/1098300712459904>
9. Chiang, C. H., Chu, C. L., & Lee, T. C. (2016). Efficacy of caregiver-mediated joint engagement intervention for young children with autism spectrum disorders. *Autism: The International Journal of Research and Practice, 20*(2), 172-82. <https://doi.org/10.1177/1362363115575725>
10. Delemere, E., & Dounavi, K. (2017). Parent-implemented bedtime fading and positive routines for children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 48*, 1002-1019. <https://doi.org/10.1007/s10803-017-3398-4>
11. Feltig, A., Schultz, T. R., & Sreckovic, M. A. (2015). Effects of coaching on the implementation of functional assessment-based parent intervention in reducing challenging behaviors. *Journal of Positive Behavior Interventions, 17*(3), 170-180. <https://doi.org/10.1177/1098300714564164>
12. Grahame, V., Brett, D., Dixon, L., McConachie, H., Lowry, J., Rodgers, J., Steen, N., & Le Couteur, A. (2015). Managing repetitive behaviours in young children with autism spectrum disorder (ASD): Pilot randomised controlled trial of a new parent group intervention. *Journal of Autism and Developmental Disorders, 45*(10), 3168-3182. <https://doi.org/10.1007/s10803-015-2474-x>
13. Green, J., Charman, T., McConachie, H., Aldred, C., Slonims, V., Howlin, P., LeCouteur, A., Leadbitter, K., Byford, S., Barrett, B., Temple, K., Macdonald, W., & Pickles, A. (2010). Parent-mediated communication-focused treatment in children with autism (PACT): A randomised controlled trial. *Lancet, 375*(9732), 2152-2160. [https://doi.org/10.1016/S0140-6736\(10\)60587-9](https://doi.org/10.1016/S0140-6736(10)60587-9)
14. Hardan, A. Y., Gengoux, G. W., Beraoust, K. L., Libove, R. A., Ardel, C. M., Phillips, J., Frazier, T. W., & Minjarez, M. B. (2015). A randomized controlled trial of Pivotal Response Treatment Group for parents of children with autism. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 56*(8), 884-892. <https://doi.org/10.1111/jcpp.12354>
15. *Harrap, C., Gulsrud, A., Shih, W., Hovsepyan, L., & Kasari, C. (2017). The impact of caregiver-mediated JASPER on child restricted and repetitive behaviors and caregiver responses. *Autism Research, 10*(5), 983-992. <https://doi.org/10.1002/aur.1732>
16. Hsieh, H. H., Wilder, D. A., & Abellon, O. E. (2011). The effects of training on caregiver implementation of incidental teaching. *Journal of Applied Behavior Analysis, 44*(1), 199-203. <https://doi.org/10.1901/jaba.2011.44-199>
17. Ingersoll, B., Wainer, A. L., Berger, N. I., Pickard, K. E., & Bonter, N. (2016). Comparison of a self-directed and therapist-assisted telehealth parent-mediated intervention for children with ASD: A pilot RCT. *Journal of Autism and Developmental Disorders, 46*(7), 2275-2284. <https://doi.org/10.1007/s10803-016-2755-z>
18. Kaiser, A. P., Hancock, T. B., & Niefeld, J. P. (2000). The effects of parent-implemented enhanced milieu teaching on the social communication of children who have autism. *Early Education and Development, 11*(4), 423-446. https://doi.org/10.1207/s15566935eed1104_4
19. Kasari, C., Gulsrud, A., Paparella, T., Hellemann, G., & Berry, K. (2015). Randomized comparative efficacy study of parent-mediated interventions for toddlers with autism. *Journal of Consulting and Clinical Psychology, 83*(3), 554-563. <https://doi.org/10.1037/a0039080>
20. Kasari, C., Gulsrud, A. C., Wong, C., Kwon, S., & Locke, J. (2010). Randomized controlled caregiver mediated joint engagement intervention for toddlers with autism. *Journal of Autism and Developmental Disorders, 40*(9), 1045-1056. <https://doi.org/10.1007/s10803-010-0955-5>
21. Kasari, C., Lawton, K., Shih, W., Barker, T. V., Landa, R., Lord, C., Orlich, F., King, B., Wetherby, A., & Senturk, D. (2014). Caregiver-mediated intervention for low-resourced preschoolers with autism: an RCT. *Pediatrics, 134*(1), 72-79. <https://doi.org/10.1542/peds.2013-3229>
22. Krantz, P. J., McClannahan, M. T., & McClannahan, L. E. (1993). Programming participation in family activities for children with autism: Parents' use of photographic activity schedules. *Journal of Applied Behavior Analysis, 26*(1), 137-138. <https://doi.org/10.1901/jaba.1993.26-137>
23. Kurtz, P. F., Chin, M. D., Robinson, A. N., O'Connor, J. T., & Hagopian, L. P. (2015). Functional analysis and treatment of problem behavior exhibited by children with fragile X syndrome. *Research in Developmental Disabilities, 43*-44, 150-166. <https://doi.org/10.1016/j.ridd.2015.06.010>
24. Lanovaz, M. J., Rapp, J. T., Maciv, I., Dorion, C., & Pregel-Pelletier, E. (2016). Preliminary effects of parent-implemented behavioural interventions for stereotypy. *Developmental Neurorehabilitation, 19*(3), 193-196. <https://doi.org/10.3109/17518423.2014.986821>
25. Law, G. C., Neilhart, M., & Dutt, A. (2017). The use of behavior modeling training in a mobile app parent training program to improve functional communication of young children with autism spectrum disorder. *Autism, 22*(4), 424-439. <https://doi.org/10.1177/136236316683887>
26. Liu, Y., Moore, D. W., & Anderson, A. (2015). Improving social skills in a child with autism spectrum disorder through self-management training. *Behaviour Change, 32*(4), 273-284. <https://doi.org/10.1017/bec.2015.14>
27. Meadon, H., Snodgrass, M. R., Meyer, L. E., Fisher, K. W., Chung, M. Y., & Hallie, J. W. (2016). Internet-based parent-implemented intervention for young children with autism: A pilot study. *Journal of Early Intervention, 38*(1), 43913. <https://doi.org/10.1177/1053815116630327>
28. Moran, D. R., & Whitman, T. L. (1991). Developing generalized teaching skills in mothers of autistic children. *Child & Family Behavior Therapy, 13*(1), 13-37. https://doi.org/10.1300/J019v13n01_02
29. Najdowski, A. C., Wallace, M. D., Reagon, K., Penrod, B., Higbee, T. S., & Tarbox, J. (2010). Utilizing a home-based parent training approach in the treatment of food selectivity. *Behavioral Interventions, 25*(2), 89-107. <https://doi.org/10.1002/bin.298>
30. Olcay-Gul, S., & Tekim-Hisar, E. (2016). Family generated and delivered social story intervention: Acquisition, maintenance, and generalization of social skills in youths with ASD. *Education and Training in Autism and Developmental Disabilities, 5*(1), 67-78.

31. Oliver, P., & Brady, M. P. (2014). Effects of covert audio coaching on parents' interactions with young children with Autism. *Behavior Analysis in Practice*, 7(2), 112-6. <https://doi.org/10.1007/s40617-014-0015-2>
32. Papadopoulos, N., Schiavias, E., Filcock, H., Mulroney, M., McGillivray, J., & Rinehart, N. (2015). The efficacy of a brief behavioral sleep intervention in school-aged children with ADHD and comorbid autism spectrum disorder. *Journal of Attention Disorders*, 23(4), 341-350. <https://doi.org/10.1177/1087054714568565>
33. *Pickles, A., Le Couteur, A., Leadbitter, K., Salomone, E., Cole-Fletcher, R., Tobin, H., Gammer, I., Lowry, J., Vamvakas, G., Byford, S., Aldred, C., Slonims, V., McConachie, H., Howlin, P., Parr, J. R., Charman, T., & Green, J. (2016). Parent-mediated social communication therapy for young children with autism (PACT): Long-term follow-up of a randomised controlled trial. *The Lancet*, 388(10059), 2501-2509. [https://doi.org/10.1016/s0140-6736\(16\)31229-6](https://doi.org/10.1016/s0140-6736(16)31229-6)
34. Poslawsky, I. E., Naber, F. B., Bakermans-Kranenburg, M. J., van Daalen, E., van Engeland, H., & van IJzendoorn, M. H. (2015). Video-feedback intervention to promote positive parenting adapted to autism (VIPP-AUT): A randomized controlled trial. *Autism*, 19(5), 588-603. <https://doi.org/10.1177/1362361314537124>
35. Rahman, A., Divan, G., Hamdani, S. U., Vajaratkar, V., Taylor, C., Leadbitter, K., Aldred, C., Minhas, A., Cardozo, P., Emsley, R., Patel, V., & Green, J. (2016). Effectiveness of the parent-mediated intervention for children with autism spectrum disorder in south Asia in India and Pakistan (PASS): A randomised controlled trial. *Lancet Psychiatry*, 3(2), 128-136. [https://doi.org/10.1016/s2215-0366\(15\)00388-0](https://doi.org/10.1016/s2215-0366(15)00388-0)
36. Reagon, K. A., & Higbee, T. S. (2009). Parent-implemented script fading to promote play-based verbal initiations in children with autism. *Journal of Applied Behavior Analysis*, 42(3), 659-664. <https://doi.org/10.1901/jaba.2009.42-659>
37. Robertson, R. E., Wehby, J. H., & King, S. M. (2013). Increased parent reinforcement of spontaneous requests in children with autism spectrum disorder: effects on problem behavior. *Research in Developmental Disabilities*, 34(3), 1069-82. <https://doi.org/10.1016/j.ridd.2012.12.011>
38. Rocha, M. L., Schreibman, L., & Stahmer, A. C. (2007). Effectiveness of training parents to teach joint attention in children with autism. *Journal of Early Intervention*, 29(2), 154-172. <https://doi.org/10.1177/105381510702900207>
39. Rollins, P. R., Campbell, M., Hoffman, R. T., & Self, K. (2016). A community-based early intervention program for toddlers with autism spectrum disorders. *Autism*, 20(2), 219-32. <https://doi.org/10.1177/1362361315577217>
40. *Scahill, L., Bearss, K., Lecavalier, L., Smith, T., Swiezy, N., Aman, M. G., Sukhodolsky, D. G., McCracken, C., Minshawi, N., Turner, K., Levato, L., Saulnier, C., Dziura, J., & Johnson, C. (2016). Effect of parent training on adaptive behavior in children with autism spectrum disorder and disruptive behavior: Results of a randomized trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, 55(7), 602-609. <https://doi.org/10.1016/j.jaac.2016.05.001>
41. Schertz, H. H., & Odom, S. L. (2007). Promoting joint attention in toddlers with autism: A parent-mediated developmental model. *Journal of Autism and Developmental Disorders*, 37(8), 1562-1575. <https://doi.org/10.1007/s10803-006-0290-z>
42. Schertz, H. H., Odom, S. L., Baggett, K. M., & Sideris, J. H. (2013). Effects of joint attention mediated learning for toddlers with autism spectrum disorders: An initial randomized controlled study. *Early Childhood Research Quarterly*, 28(2), 249-258. <https://doi.org/10.1016/j.ecresq.2012.06.006>
43. Schertz, H. H., Odom, S. L., Baggett, K. M., & Sideris, J. H. (2017). Mediating parent learning to promote social communication for toddlers with autism: Effects from a randomized controlled trial. *Journal of Autism and Developmental Disorders*, 48(3), 853-867. <https://doi.org/10.1007/s10803-017-3386-8>
44. Seiverling, L., Williams, K., Sturmey, P., & Hart, S. (2012). Effects of behavioral skills training on parental treatment of children's food selectivity. *Journal of Applied Behavior Analysis*, 45(1), 197-203. <https://doi.org/10.1901/jaba.2012.45-197>
45. Siller, M., Hutman, T., & Sigman, M. (2013). A parent-mediated intervention to increase responsive parental behaviors and child communication in children with ASD: A randomized clinical trial. *Journal of Autism and Developmental Disorders*, 43(3), 540-555. <https://doi.org/10.1007/s10803-012-1584-y>
46. Siller, M., Swanson, M., Gerber, A., Hutman, T., & Sigman, M. (2014). A parent-mediated intervention that targets responsive parental behaviors increases attachment behaviors in children with ASD: results from a randomized clinical trial. *Journal of Autism and Developmental Disorders*, 44(7), 1720-1732. <https://doi.org/10.1007/s10803-014-2049-z>
47. Solomon, R., Van Egeren, A., Mahoney, G., Quon-Huber, M. S., & Zimmerman, P. (2014). PLAY project home consultation intervention program for young children with autism spectrum disorders: A randomized controlled trial. *Journal of Developmental and Behavioral Pediatrics*, 35(8), 475-485. <https://doi.org/10.1016/j.DBP.0000000000000096>
48. Stadnick, N. A., Stahmer, A., & Brookman-Frazee, L. (2015). Preliminary Effectiveness of project ImPACT: A parent-mediated intervention for children with autism spectrum disorder delivered in a community program. *Journal of Autism and Developmental Disorders*, 45(7), 2092-2104. <https://doi.org/10.1007/s10803-015-2376-y>
49. Stiebel, D. (1999). Promoting augmentative communication during daily routines: A parent problem-solving intervention. *Journal of Positive Behavior Interventions*, 1(3), 159-169. <https://doi.org/10.1177/109830079900100304>
50. Tarbox, J., Wallace, M. D., & Tarbox, R. S. (2002). Successful generalized parent training and failed schedule thinning of response blocking for automatically maintained object mouthing. *Behavioral Interventions*, 17(3), 169-178. <https://doi.org/10.1002/bin.116>
51. Tellegen, C. L., & Sanders, M. R. (2014). A randomized controlled trial evaluating a brief parenting program with children with autism spectrum disorders. *Journal of Consulting and Clinical Psychology*, 82(6), 1193-200. <https://doi.org/10.1037/a0037246>
52. Tonge, B., Breerton, A., Kiomall, M., Mackinnon, A., & Rinehart, N. J. (2014). A randomised group comparison controlled trial of 'preschoolers with autism: A parent education and skills training intervention for young children with autistic disorder. *Autism*, 18(2), 166-77. <https://doi.org/10.1177/1362361312458186>
53. Turner-Brown, L., Hume, K., Boyd, B. A., & Kainz, K. (2016). Preliminary efficacy of family implemented TEACCH for toddlers: Effects on parents and their toddlers with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 49(7), 2685-2698. <https://doi.org/10.1007/s10803-016-2812-7>

54. Venker, C. E., McDuffie, A., Ellis Weismer, S., & Abbeduto, L. (2012). Increasing verbal responsiveness in parents of children with autism: A pilot study. *Autism, 16*(6), 568-585. <https://doi.org/10.1177/1362361311413396>
55. Vernon, T. W., Koenig, R. L., Dauterman, H., & Stölen, K. (2012). An early social engagement intervention for young children with autism and their parents. *Journal of Autism and Developmental Disorders, 42*(12), 2702-17. <https://doi.org/10.1007/s10803-012-1535-7>
56. Wang, H. T. (2017). Utilizing primary tier intervention to enhance reciprocal turn-taking of children with autism in Taiwan. *Education and Training in Autism Developmental Disabilities, 52*(1), 64-76.
57. Wetherby, A. M., Guthrie, W., Woods, J., Schatschneider, C., Holland, R. D., Morgan, L., & Lord, C. (2014). Parent-implemented social intervention for toddlers with autism: An RCT. *Pediatrics, 134*(6), 1084-1093. <https://doi.org/10.1542/peds.2014-0757>
58. Whitehouse, A. J. O., Granich, J., Alvares, G., Busacca, M., Cooper, M. N., Dass, A., Duong, T., Harper, R., Marshall, W., Richdale, A., Rodwell, T., Trembath, D., Vellanki, P., Moore, D. W., & Anderson, A. (2017). A randomised controlled trial of an iPad-based application to complement early behavioural intervention in Autism Spectrum Disorder. *Journal of Child Psychology and Psychiatry, 58*(9), 1042-1052. <https://doi.org/10.1111/jcpp.12752>
59. Zand, D. H., Bultas, M. W., McMillin, S. E., Halloran, D., White, T., McNamara, D., & Pierce, K. J. (2017). A pilot of a brief positive parenting program on children newly diagnosed with autism spectrum disorder. *Family Process, 57*(4). <https://doi.org/10.1111/famp.12334>

* indicates articles that are either secondary data analysis or follow-up for an article already included in the list

Reflections

Early Identification and Diagnosis
Evidence-Based Treatment
Reducing System Complexity
Increasing Network Capacity
Adults with ASD

Next Steps

- Targeting draft to be sent for committee review: January 31st, 2021
- Deadline for feedback is February 28th, 2021 to Rohn.Geppert@azahcccs.gov. Please be sure to reference the section to which the feedback applies (A1, B2, etc.)
- Final addendum to the report complete with feedback incorporated will be available at the April Advisory Committee meeting.

2021 and Beyond Vision

Barbara Brent
Committee Facilitator

Dr. Sara Salek
AHCCCS CMO

Additional Issues, Announcements, and Future Agenda Topics

Barbara Brent
Committee Facilitator

2021 Meeting Schedule:

Jan 6th, April 7th, July 7th, Oct 6th

AHCCCS ASD web page:

<https://www.azahcccs.gov/shared/asd.html>

SYSTEMATIC REVIEWS OF ASD RESEARCH WITH TARGET/OUTCOMES – PAGE 1

(T. Matteo, Ph.D./ C. Hoard, EdD.) November 2015 (Updated January, 2021)

For each of the four reviews in the table below, the symbols represent the following categories:

- Level 1: Established Evidence (solid bullet)
- * Level 2: Emerging Evidence (asterisk)
- No symbol: the study did not include the category

INTERVENTION	NPDC 2014/NCAEP 2020	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
	SYSTEMATIC REVIEWS				TARGET/OUTCOMES				
COMPREHENSIVE INTERVENTIONS									
Comprehensive Behavioral Intervention Programs for Young Children (NSP2 & CMS) also referred to as <i>Early Intensive Behavioral and Developmental Interventions (AHRQ); Early Intensive Behavior Interventions (EIB) or behavioral inclusive programs (NSP2)</i> . All utilize ABA principles. Ex. LEAP, Denver Model, UCLA Young Autism Project.	•	•	•	• *	√ √	√	√ √	√	√ √
Structured Teaching (NSP2 & CMS) describes programs such as TEACCH; (AHRQ) and overlaps with Structured Work Systems, which are one component of Structured Teaching in TEACCH and LEAP.		•	*	• *	√ √	√	√ √	√	√ √
FOCUSED INTERVENTIONS									
Academic (CMS) . NPDC listed these separately.		*			√	√		√	√
• Direct Instruction (NPDC) . NCAEP moved Direct Instruction into the Evidence-Based Practice category in 2020.	•						√		
• Collaborative Coaching (NPDC) . NCAEP changed name to Collaborative Model for Prompting Competence and Success (COMPASS) – continues to be in the emerging evidence category with NCAEP in 2020.	*							√	
• Collaborative Learning (NPDC)	*				√			√	
• Handwriting Without Tears (NPDC)	*							√	
• Sentence Combining Technique (NPDC)	*							√	
• Systematic Transition in Education Programme for Autism Spectrum Disorder (STEP-ASD) (NCAEP)	*							√	
• Test Taking Strategy Instruction (NPDC)	*							√	
• Touch Point Instruction (NPDC) – NCAEP included studies of Touch Point Instruction under Modeling, Prompting and Reinforcement.	•				√	√	√	√	√

SYSTEMATIC REVIEWS OF ASD RESEARCH WITH TARGET/OUTCOMES – PAGE 2

(T. Matteo, Ph.D./ C. Hoard, EdD.) November 2015 (Updated January, 2021)

INTERVENTION	NPDC 2014/NCAEP 2020	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
FOCUSED INTERVENTIONS (cont.)									
Animal Assisted Intervention (NCAEP) - new in the NCAEP review in 2020.	*				√		√		
Antecedent Intervention/Package (NSP2 & CMS) groups a variety of antecedent-based Interventions; NPDC uses 3 categories: Prompting, Time Delay and Stimulus Control/Environmental Modification (also referred to as Antecedent-based Interventions)	●	●			√	√	√	√	√
<ul style="list-style-type: none"> ● Prompting Term used by NPDC and included in Behavioral Strategies category; Antecedent Package (NSP2 & CMS) 	●		●		√	√	√	√	√
<ul style="list-style-type: none"> ● Stimulus Control/ Environmental Modification Term used by NPDC interchangeably with Antecedent-based Interventions and included in overall category of Positive Behavioral Support Strategies: Antecedent Package (NSP2 & CMS) 	●				√	√	√	√	√
Auditory Integration Training (NPDC). Continues to be in the emerging evidence category with NCAEP in 2020.	*						√		
Augmentative and Assistive Communication (NCAEP, NSP2, CMS). This category is new to NCAEP. NCAEP moved Picture Exchange Communication System (PECS) and Language Modeling to AAC. NSP2 and CMS included these in emerging evidence .	●	*	*		√	√	√		
Behavior Momentum Intervention (NPDC). NCAEP moved this intervention from emerging evidence category to evidence-based category in 2020.	●				√	√	√		√
Behavioral Package (NSP2 & CMS) groups a variety of behaviorally based interventions: NPDC lists nine separate interventions that fit within this category as well as Behavior Momentum Intervention. NSP2 & CMS use Reductive Package within this category	●	●	●		√	√	√	√	√

● Level 1: Established Evidence Category * Level 2: Emerging Evidence Category

INTERVENTION	NPDC 2014/NCAEP 2020	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
FOCUSED INTERVENTIONS (cont.)									
<ul style="list-style-type: none"> Differential Reinforcement of Alternative, Incompatible, or Other Behavior (DR). Term used by NCAEP and in overall category of Positive Behavior Support Strategies; Behavioral Package (NSP2 & CMS) 	●	●	●		√	√	√	√	√
<ul style="list-style-type: none"> Exposure Term used by (NSP2, NPDC). Continues to be in the emerging evidence category with NCAEP in 2020. 	*		*				√		
<ul style="list-style-type: none"> Extinction Term used by NPDC and in the overall category of Positive Behavior Support Strategies; Behavioral Package (NSP2 & CMS). 	●					√	√		√
<ul style="list-style-type: none"> Functional Behavior Assessment (FBA) (NPDC). Also in the overall category of Positive Behavior Support Strategies; Behavioral Package (NSP2 & CMS). A systematic way of determining 	●		*			√	√		√
<ul style="list-style-type: none"> Functional Communication Training Term used by NPDC and in overall category of Positive Behavior Support Strategies; Behavioral Package (NSP2 & CMS) 	●				√	√	√		√
<ul style="list-style-type: none"> Reinforcement Term used by NPDC and included in Behavioral strategies category; Behavioral Package (NSP2 & CMS) 	●				√	√	√	√	√
<ul style="list-style-type: none"> Removal of Restraints NPDC included in Behavioral strategies category 	*								
<ul style="list-style-type: none"> Response Interruption/Redirecting Term used by NPDC and in overall category of Positive Behavior Support Strategies; Behavioral Package (NSP2 & CMS) 	●				√	√	√	√	√
<ul style="list-style-type: none"> Task Analysis (NCAEP changed term to just “Task Analysis” instead of “Task Analysis and Chaining.” NPDC included in Behavioral strategies category; Behavioral Package (NSP2 & CMS) 	●					√		√	√
<p>Cognitive Behavioral Interventions /Cognitive Behavioral Intervention Package (NSP2 & CMS); Cognitive Behavioral Therapy – specific for anxiety (AHRQ);NCAEP moved Schema-Based Strategy Instruction – to CBI category.</p>	● *	●	●	●	√	√	√	√ √	√

INTERVENTION	NPDC 2014/NCAEP 2020	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
FOCUSED INTERVENTIONS (cont.)									
Computer-aided Treatment/Technology-aided Instruction <i>Use of Technology-based Treatment (CMS, NSP2); Technology-aided instruction (NPDC)</i>	●	●	*		√	√	√	√	√
Developmental Relationship-based (CMS); Developmental-Relationship-based Treatment (NSP2): <i>Overlaps with Parent Training (AHRQ); NCAEP included 3 RCT studies of DIR/Floortime in their Parent Implemented Intervention (PII) grouping. This group overlaps with PII.</i>	* ●	*	*		√ √	√ √	√ √		√ √
Discrete Trial Training (NSP2, NPDC/NCAEP). <i>Instructional approach with massed or repeated trials with each trial consisting of the teacher’s instruction/presentation, the child’s response, a carefully planned consequence, and a pause prior to presenting the next instruction (NCAEP).</i>	●	●	●		√	√		√	√
Exercise and Movement <i>(Was referred to as “Exercise” in NSP2 & NPDC). NCAEP changed title to “Exercise and Movement” (2020).</i>	●		*		√	√	√	√	√
Joint Attention Intervention (Intervention and Outcome) <i>(CMS) treated JA as intervention; NSP2 included JA in Behavioral Package; NPDC & AHRQ treated joint attention as an outcome, interventions in this category overlap with multiple NPDC categories including JA-Symbolic Play Instruction; AHRQ - play-based intervention for JA as outcome.</i>	*	●	●	●	√	√	√	√	
Language Training (NSP2) <i>also referred to as Language Production (CMS); NSP2 (also included Language Training for Understanding (emerging category)</i>		*	● *		√	√			
Matrix Training (NCAEP). <i>New as an emerging evidence category in 2020.</i>	*						√	√	
Modeling (NSP2 & CMS) <i>overlaps with Video Modeling (NPDC); Imitation-based Intervention (NSP2)</i>	●	*	●		√	√		√	√

INTERVENTION	NPDC 2014/NCAEP 2020	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
FOCUSED INTERVENTIONS (cont.)									
Multi-component Package <i>This term is used only by NSP2 and CMS to describe interventions that do not clearly fit in another category</i>		●	*		√	√	√	√	√
Music Therapy (NPDC, CMS, NSP2) <i>NCAEP changed category name to “Music-Mediated Intervention,” which includes Music Therapy.</i>	●	*	*		√	√	√	√	√
Naturalistic Interventions <i>Term used by NPDC; NSP2 & CMS uses the term Naturalistic Teaching Strategies</i>	●	●	●		√	√	√		
<ul style="list-style-type: none"> ● Pivotal Response Training (PRT) <i>Term used by NPDC; Pivotal Response Treatment (NSP2 & CMS); included in Parent Training Approaches (AHRQ) NCAEP moved this category to Naturalistic Interventions (2020).</i> 	●	*	●	*	√	√	√		
Outdoor Adventure (NCAEP). <i>New to NCAEP.</i>	*				√	√			
Parent Implemented Interventions <i>Parent Training Approaches/ overlap with Symbolic Play and Play-based Interventions (AHRQ) (New to NSP2) AHRQ included DIR/Floortime studies in this group. NCAEP included 3 RCT studies of DIR/Floortime and is now considered having clear evidence in PII group (NCAEP). This group also includes Project IMPACT; Stepping Stones Triple P/Primary Care.</i>	●		●	*	√	√	√		√
Peer Mediated Interventions <i>Term used by NPDC; NSP2 and CMS use Peer Training Package; NPDC also uses Structured Play Group; NSP2 uses Initiation Training as well</i>	●	●	●		√	√		√	
Person-Centered Planning (NCAEP). <i>New to NCAEP.</i>	*						√		
Picture Exchange Communication System (PECS) <i>NPDC, NSP2 and CMS consistently use this term and included it as a stand-alone category. NCAEP moved PECS into AAC.</i>	●	●	*		√	√	√		

INTERVENTION	NPDC 2014/NCAEP 2020	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
FOCUSED INTERVENTIONS (cont.)									
Schedules (NSP2 & CMS) overlaps with Structured Work Systems and Visual Supports (NPDC) Evidence-based	●	●	●		√	√	√	√	√
Sensory/Massage – Sensory Regulation <ul style="list-style-type: none"> ● Massage (CMS included Touch w/ Massage) * Music Intensity (has to do with sensory input) * Perceptual Motor (New in NCAEP) * Sensory Diet ● Sensory Integration®(NCAEP – moved this specific intervention by Jean Ayers to evidenced-based practice) 	* * * *	* 	* 		√ √	√ √	√ √	√ √	√ √
Self-Management <i>This term is used consistently by NPDC, NSP2 & CMS; Self-Regulatory Strategy Development Writing (NSP2)</i>	●	*	●		√	√	√	√	
Social Communication Intervention <i>Interventions included in this category by NSP2 & CMS are included in the AHRQ Parent Training Approaches Category</i>		●	*		√	√			
Social Narratives (NPDC) overlaps with Story-based Intervention Package (NSP2 & CMS) overlaps with Scripting (NSP2 & CMS)	●	●	●		√	√	√	√	√
Social Skills Training (NCAEP changed title of this group to Social Skills Training). <i>Social Skills Training Group (NPDC) is similar to Social Skills Package (NSP2 & CMS) and Social Skills Training (AHRQ); Initiation Training (CMS)</i>	●	●	●		√	√	√		
Speech Generating Strategies (NCAEP moved this group of interventions into the evidenced-based intervention group under Augmentative and Alternative Communication) – including PECS and Aided Language Modeling. (NSP2 & CMS); <i>Sign Instruction (NSP2) – found these to be in the emerging evidence category.</i>	●	*	*		√	√			

SYSTEMATIC REVIEWS OF ASD RESEARCH WITH TARGET/OUTCOMES – PAGE 7

(T. Matteo, Ph.D./ C. Hoard, EdD.) November 2015 (Updated January, 2021)

INTERVENTION	NPDC 2014/NCAEP 2020	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
FOCUSED INTERVENTIONS (cont.)									
Technology-Aided Instruction and Intervention (NCAEP) <i>Use of Technology-based Treatment (CMS, NSP2); Technology-aided instruction (NPDC)</i>	●	●	*		√	√	√	√	√
Theory of Mind (NPDC, NSP2, CMS) NCAEP moved Theory of Mind Interventions into the Social Skills Training group.	*	*	*		√	√		√	
Toilet Training (NPDC, isolated skill)	*								√
Video Modeling (NPDC) overlaps with Modeling (NSP2 & CMS)	●	*	●		√	√	√	√	√
Visual Supports (NPDC) overlaps with Schedules (NSP2 & CMS)	●	●	●		√	√	√	√	√

● Level 1: Established Evidence Category * Level 2: Emerging Evidence Category

INTERVENTION DESCRIPTIONS

COMPREHENSIVE INTERVENTIONS

Comprehensive Interventions utilize multiple focused interventions that are organized around a central theoretical or conceptual framework, target multiple domains, and are typically longer in duration.

Comprehensive Behavioral Intervention Programs for Young Children: Interventions involving a combination of instructional and behavior change strategies and a curriculum that addresses core and ancillary symptoms and behaviors of ASD. (CMS) Examples include: Life Skills and Education for Students with Autism and Other Pervasive Behavioral Challenges (LEAP), Early Start Denver Model, UCLA Young Autism Project.

Structured Teaching: This intervention involves a combination of procedures that rely on the physical organization of a setting, predictable schedules, and individualized use of teaching methods. These teaching methods may be used in comprehensive interventions such as Treatment and Education of Autistic and related Communication-handicapped Children (TEACCH) and LEAP.

FOCUSED INTERVENTIONS

Focused interventions refer to treatments that are typically shorter term in duration and target discrete skills.

Academic Interventions: Interventions involving the use of traditional teaching methods to improve academic performance. (CMS)

- **Direct Instruction:** A systematic approach to teaching using a sequenced instructional package with scripted protocols or lessons. It emphasizes teacher and student dialogue through choral and independent student responses and employs systematic and explicit error corrections to promote mastery and generalization. (NCAEP)
- **Collaborative Model for Promoting Competence and Success (COMPASS)** Previously called “Collaborative Coaching.” (NCAEP). Systematic consultation between parent and teacher and ongoing coaching across the school year to help the team promote achievement of IEP goals utilizing evidence-based practices. (NCAEP).
- **Collaborative Learning:** Academic learning organized around joint activities and goals. (NPDC)
- **Handwriting Without Tears:** Multisensory activities promoting fine motor and writing skills. (NPDC)
- **Sentence Combining Technique:** Instructional package including teacher modeling, student practice, and worksheet to increase adjective use in writing. (NPDC)
- **Systematic Transition in Education Programme for Autism Spectrum Disorder (STEP-ASD):** Intervention that supports parents, students, and school teams in individualizing planning for and executing the transition from primary to secondary school and addressing related behavioral and emotional issues.
- **Test Taking Strategy Instruction:** Instructional package including modeling, mnemonic devices, verbal practice sessions, controlled practice sessions, advanced practice sessions. (NPDC)
- **Touch-Point Instruction:** Tactile and number line materials used to introduce math and numeracy concepts. (NPDC)

Animal Assisted Intervention: Intervention that incorporates the use of a dog to improve performance of targeted behaviors or skills. (NCAEP).

INTERVENTION DESCRIPTIONS

Antecedent Intervention/Package: Interventions involving the modifications of events that typically precede the occurrence of a target behavior. These alterations are made to increase the likelihood of success or reduce the likelihood of problems occurring. (CMS). Prompting, Time Delay and Stimulus Control/Environmental Modification are included within this category.

- **Prompting:** Verbal, gestural, or physical assistance given to learners to assist them in acquiring or engaging in a targeted behavior or skill. Prompts are generally given by an adult or peer before or as a learner attempts to use a skill. (NPDC)
- **Stimulus Control/ Environmental Modification:** Term used by NPDC interchangeably with Antecedent-based Interventions. Interventions in which environmental modifications are used to change the conditions in the setting that prompts a learner to engage in an interfering behavior. The goal is to identify factors that are reinforcing the interfering behavior and then modify the environment or activity so that the factor no longer elicits the interfering behavior. (NPDC)

Augmentative and Assistive Communication (NCAEP, NSP2, CMS). Use and/or teach the use of a system of communication that is not verbal/vocal including aided and unaided communication systems. Unaided communication systems do not use any materials or technology (e.g., sign language and gestures). Aided communication systems include low tech systems (e.g., exchanging objects/ pictures or pointing to letters) and extend to high tech speech generating devices (SGDs) and applications that allow other devices (i.e., phones, tablets) to serve as SGDs. Methods of teaching AAC use are also included in this category (e.g., Aided Language Modeling) which may include other EBPs such as prompting, reinforcement, visual supports, and peer-mediated interventions. (NCAEP).

Auditory Integration Training: Intervention involving the presentation of modulated sounds through headphones in an attempt to retain an individual’s auditory system with the goal of improving distortions in hearing or sensitivities to sound. (CMS)

Behavioral Momentum Intervention: The organization of behavior expectations in a sequence in which low probability, or more difficult, responses are embedded in a series of high probability, or less effortful, responses to increase persistence and the occurrence of the low probability responses.

Behavioral Package: Interventions designed to reduce problem behavior and teach functional alternative behaviors or skills through the application of basic principles of behavior change. (CMS) NPDC lists nine separate interventions that fit within this category as well as Behavior Momentum Intervention. NSP2 & CMS include Reductive Package within this category.

- **Differential Reinforcement of Alternative, Incompatible, or Other Behavior (DR):** A systematic process that increases desirable behavior or the absence of an undesirable behavior by providing positive consequences for demonstration/non-demonstration of such behavior. (NCAEP) This term was used by NPDC and in overall category of Positive Behavior Support Strategies or in Behavioral Package (NSP2 & CMS)
- **Extinction:** The removal of reinforcing consequences of a challenging behavior in order to reduce the future occurrence of that behavior (NCAEP).
- **Functional Behavior Assessment (FBA):** Systematic collection of information about an interfering behavior designed to identify functional contingencies that support the behavior. FBA consists of describing the interfering or problem behavior, identifying antecedent or consequent events that control

INTERVENTION DESCRIPTIONS

the behavior, developing a hypothesis of the function of the behavior, and/or testing the hypothesis. (NPDC) The term is used by NPDC and in overall category of Positive Behavior Support Strategies and also used by NSP2 and CMS in the Behavioral Package.

- **Functional Communication Training (FCT):** Replacement of interfering behavior that has a communication function with more appropriate communication that accomplishes the same function. (NPDC) This term is used by NPDC and in overall category of Positive Behavior Support Strategies and is also used by NSP2 and CMS in the Behavioral Package.
- **Reinforcement:** An event, activity, or other circumstance occurring after a learner engages in a desired behavior that leads to the increased occurrence of the behavior in the future. (NPDC) Included in Behavioral strategies category & Behavioral Package (NSP2 & CMS)
- **Removal of Restraints:** Gradual removal of restraints involving application of pressure to arm, shadowing. (NPDC) Included in Behavioral Strategies category
- **Response Interruption/Redirecting:** Introduction of a prompt, comment, or other distracter when an interfering behavior is occurring that is designed to divert the learner’s attention away from the interfering behavior and results in its reduction. (NPDC) Included in overall category of Positive Behavior Support Strategies; Behavioral Package (NSP2 & CMS)
- **Task Analysis:** A process in which an activity or behavior is divided into small, manageable steps in order to assess and teach the skill. Other practices, such as reinforcement, video modeling, or time delay, are often used to facilitate acquisition of the smaller steps. (NCAEP) Included in Behavioral Strategies category; Behavioral Package (NSP2 & CMS)
- **Time Delay:** A practice used to systematically fade the use of prompts during instructional activities by using a brief delay between the initial instruction and any additional instructions or prompts.

Cognitive Behavioral Interventions: Interventions designed to change negative or unrealistic thought patterns and behaviors with the aim of positively influencing emotions and life functioning. (CMS) Also described as instruction on the management or control of cognitive processes that lead to changes in overt behavior. (NPDC) Referred to as Cognitive Behavioral Intervention Package by NSP2 & CMS; AHRQ identified the specific use of CBT with anxiety as showing Established Evidence. NPDC identified “Schema-based Strategy Instruction” as showing emerging evidence (i.e., insufficient evidence to be included in the Established Evidence category).

Developmental Relationship–based Treatment: Interventions involving a combination of procedures that are based on developmental theory and emphasize the importance of building social relationships. (CMS). This category overlaps with Parent Training (AHRQ) since they included DIR/Floortime Research in their Parent Training category.

Discrete Trial Training: Instructional approach with massed or repeated trials with each trial consisting of the teacher’s instruction/presentation, the child’s response, a carefully planned consequence, and a pause prior to presenting the next instruction (NCAEP).

Exercise and Movement: Interventions that use physical exertion, specific motor skills/techniques, or mindful movement to target a variety of skills and behaviors. (NCAEP added “movement” to intervention category). Previously NPDC found established evidence for use of exercise to decrease problem behaviors and increase positive behaviors. NSP2 found an emerging level of evidence.

INTERVENTION DESCRIPTIONS

Joint Attention (JA) Intervention (Intervention and Outcome): Interventions involving teaching a child to respond to the nonverbal social bids of others or to initiate joint attention interactions. (CMS) CMS treated JA as an intervention. JA has been linked to increases in communication and symbolic play. NSP2 included JA in the Behavioral Package. NPDC & AHRQ treated JA as an outcome. Interventions in this category overlap with multiple NPDC categories including JA-Symbolic Play Instruction; Play-based intervention for JA as outcome (AHRQ).

Language Training: Interventions that have as their primary goal to increase speech production. (CMS) CMS identified Language Production as having an emerging level of evidence. NSP2 identified more studies that showed established evidence for Language Training (production). NSP2 included Language Training for Understanding (comprehension) as an emerging evidence category.

Matrix Training: Teaching approach that facilitates generalization of taught information to related but untaught information through the arrangement of components of desired skills (e.g., words) along the horizontal and vertical axes of a rectangle, then systematically teaching combinations of components across the resulting matrix.

Modeling: Interventions relying on an adult or peer providing a demonstration of the target behavior that should result in an imitation of the target behavior by the individual with ASD. (CMS) NPDC noted that modeling is often combined with prompting and reinforcement. NPDC included both Modeling and Video Modeling (use of video recording) as separate established evidence categories. CMS included modeling in the emerging evidence category. NSP2 also included a new category called Imitation-based Intervention – and showed emerging evidence for this intervention.

Multi-component Package: These interventions involve a combination of multiple treatment procedures that are derived from different fields of interest or different theoretical orientations. These treatments do not better fit one of the other treatment “packages” listed above nor are they associated with specific treatment programs. Examples are: The Family Support Program, Multicomponent Teaching Package.

Music Therapy: Interventions that teach individuals skills through music (*NPDC, CMS, NSP2*)

Naturalistic Interventions: Interventions involving using primarily child-directed interactions to teach functional skills in the natural environment. They often focus on providing a stimulating environment, modeling how to play, encouraging conversation, providing choices and direct/natural reinforcers, and rewarding reasonable attempts. (CMS); Intervention strategies usually occur during typical setting/activities/routines; establish the learner’s interest through arrangement of the setting/activity/routine, provide necessary support for the learner to engage in the targeted behavior when it occurs, and arrange natural consequences for the targeted behavior. (NPDC) *NSP2 & CMS use the term Naturalistic Teaching Strategies*

Outdoor Adventure: Group camp-style activities that incorporate songs, rope courses, and debriefs focusing on teamwork, trust, communication, facing fears, and self-determination.

Parent Implemented Interventions: Interventions involving parents delivering the intervention to their child to improve/increase a wide variety of skills and/or to reduce interfering behaviors. Parents learn to deliver interventions in their home and/or community through a structured parent-training program. Parent Training Approaches/ overlap with Symbolic Play and Play-based Interventions. (AHRQ) AHRQ included DIR/Floortime

INTERVENTION DESCRIPTIONS

studies in this group. Examples include: Social Communication Intervention, ESDM, DIR/Floortime; Joint Attention Intervention, Joint Attention Symbolic Play Engagement and Regulation (JASPER). NPDC & NSP2 grouped studies that were identified as showing established evidence. AHRQ identified the category at the emerging level.

Peer Mediated Interventions: Typically developing peers interact with and/or help children and youth with ASD to acquire new behavior, communication, and social skills by increasing social and learning opportunities within natural environments. Teachers/service providers systematically teach peers strategies for engaging children and youth with ASD in positive and extended social interactions in both teacher-directed and learner-initiated activities. (NPDC). NSP2 and CMS use Peer Training Package; NPDC also uses Structured Play Group (a group including both typically developing peers and children with ASD); NSP2 included Initiation Training (in the emerging evidence category).

Perceptual Motor: A series of tasks that target body awareness, motor planning, bilateral motor integration, balance skills, fine motor coordination, functional vision skills, and oral motor skills.

Person-Centered Planning: Team-based process for selecting and organizing the services and supports that an individual may need to live in the community directed by the learner.

Picture Exchange Communication System (PECS): This intervention involves the application of a specific augmentative and alternative communication system based on behavioral principles that are designed to teach functional communication to children with limited verbal and/or communication skills. (CMS) Learners are initially taught to give a picture of a desired item to a communicative partner in exchange for a desired item. (NPDC). *NPDC, NSP2 & CMS consistently use this term.*

Pivotal Response Training (PRT): This treatment is also referred to as PRT, Pivotal Response Teaching, and Pivotal Response Treatment. PRT focuses on targeting “pivotal” behavior areas, such as motivation to engage in social communication, self-initiation, self-management, and responsiveness to multiple cues, with development of these areas having the goal of very widespread and fluently integrated collateral improvements. (CMS) Term used by NPDC; Pivotal Response Treatment (NSP2 & CMS); Included in Parent Training Approaches (AHRQ)

Schedules: Interventions involving the presentation of a task that communicates a series of activities or steps required to complete a specific activity. Schedules are often supplemented by other interventions such as reinforcement. (CMS) NSP2 & CMS included schedules. This overlaps with Structured Work Systems and Visual Supports (NPDC)

Self-Management: These interventions work toward independence by teaching individuals with ASD to regulate their behavior, recording the occurrence/non-occurrence of the target behavior, and securing reinforcement for doing so. Initial skills development may involve other strategies and may include the task of setting one’s own goals. (CMS) This term is used consistently by NPDC, NSP2 & CMS; Self-Regulatory Strategy Development Writing (NSP2). NCAEP (2020) also noted that self-management techniques focus on helping the individual to discriminate between appropriate and inappropriate behaviors, monitor and record their own behaviors, and reward themselves for appropriate behavior.

INTERVENTION DESCRIPTIONS

Social Communication Intervention: These interventions psychosocial interventions involve targeting some combination of impairments such as pragmatic communication skills, and the ability to successfully read social situations. (CMS) Interventions included in this category by NSP2 & CMS are included in the AHRQ Parent Training Approaches Category

Social Narratives: These treatments involve a written description of the situations under which specific behaviors are expected to occur. Stories may be supplemented with additional components (e.g., prompting, reinforcement, discussion, etc.). (CMS) These narratives describe in some detail the relevant cues of social situations and offer examples of appropriate responding. (NPDC) This intervention overlaps with Story-based Intervention Package (NSP2 & CMS) overlaps with Scripting (NSP2 & CMS)

Social Skills Training: These interventions seek to build social interaction skills in children with ASD by targeting basic responses (e.g., eye contact, name response) to complex social skills (e.g., how to initiate or maintain a conversation). (CMS) Social Skills Training Group (NPDC) is similar to Social Skills Package (NSP2 & CMS) and Social Skills Training (AHRQ); Initiation Training (CMS)

Speech Generating Strategies: Interventions involving the use of high or low devices to facilitate communication. Examples include but are not restricted to: pictures (PECS), photographs, symbols, communication books, computers, or other electronic devices. (NPDC) also referred to as VOCA overlaps with Augmentative and Alternative Communication Devices (NSP2 & CMS); NPDC Aided Language Modeling; Sign Instruction (NSP2)

Technology-Aided Instruction and Intervention (New title for this group in NCAEP). Instruction or intervention in which technology is the central feature and the technology is specifically designed or employed to support the learning or performance of a behavior or skill for the learner. (NCAEP). CMS & NSP2 used a category called “Technology-based Treatment. NPDC included the definition of technology as “any electronic item/equipment/application/or virtual network that is used intentionally to increase/maintain, and/or improve daily living, work/productivity, and recreation/leisure capabilities of adolescents with autism spectrum disorder (Odom, Thompson, et al., 2013). (NPDC).

Theory of Mind: These interventions are designed to teach individuals with ASD to recognize and identify mental states (i.e., a person’s thoughts, beliefs, intentions, desires, and emotions) in oneself or in others and to be able to take the perspective of another person in order to predict their actions. (CMS) CMS, NPDC & NSP2 identified category at the emerging level.

Toilet Training: Modifications of toilet training program developed by Arin & Fox (1971). (NPDC) An isolated skill.

Video Modeling: A video-recorded demonstration of the targeted behavior or skill shown to the learner to assist learning in or engaging in a desired behavior or skill. (NPDC). Overlaps with Modeling (NSP2, CMS).

Visual Supports: A visual display that supports the learner engaging in a desired behavior or skills independent of additional prompts. (NPDC). Overlaps with Schedules (NSP2, CMS).

SYSTEMATIC REVIEWS OF ASD RESEARCH: INTERVENTION DESCRIPTIONS – PAGE 7

(T. Matteo, Ph.D./ C. Hoard, EdD.) November, 2015 (Updated January, 2021)

4 Systematic Review Studies (Updated 2021):

(CMS) Center for Medicaid and Medicare Services commissioned a review of existing services for ASD: U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services. (2010). [Autism Spectrum Disorders Services \(ASDs\): Final report on environmental scan](#). Baltimore, MD: Young, J., Corea, C., Kimani, J., & Mandell, D.

*(NCAEP) Steinbrenner, J. R., Hume, K., Odom, S. L., Morin, K. L., Nowell, S. W., Tomaszewski, B., Szendrey, S., McIntyre, N. S., Yücesoy-OÄnzkan, S., & Savage, M. N. (2020). Evidence-based practices for children, youth, and young adults with Autism. The University of North Carolina at Chapel Hill, Frank Porter Graham Child Development Institute, National Clearinghouse on Autism Evidence and Practice Review Team.

(NPDC) National Professional Development Center/Autism Evidence-Based Practice Review Group at UNC Chapel Hill: Wong, C., Odom, S. L., Hume, K. Cox, A. W., Fettig, A., Kucharczyk, S., ... Schultz, T. R. (2014). *Evidence-based practices for children, youth, and young adults with Autism Spectrum Disorder*. Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, Autism Evidence-Based Practice Review Group.

(NSP2) National Standards Project – Phase 2: National Autism Center, A Center of May Institute: National Autism Center. (2015). *Findings and conclusions: National standards project, phase 2*. Randolph, MA: Author

(DHHS/AHRQ) – Department of Health and Human Services and the Agency for Healthcare Research and Quality commissioned Vanderbilt University to complete a systematic review of the ASD research: Weitlauf AS, McPheeters ML, Peters B, Sathe N, Travis R, Aiello R, Williamson E, Veenstra-VanderWeele J, Krishnaswami S, Jerome R, Warren Z. *Therapies for Children With Autism Spectrum Disorder: Behavioral Interventions Update. Comparative Effectiveness Review No. 137*. (Prepared by the Vanderbilt Evidence-based Practice Center under Contract No. 290-2012-00009-I.) AHRQ Publication No. 14-EHC036-EF. Rockville, MD: Agency for Healthcare Research and Quality; August 2014. www.effectivehealthcare.ahrq.gov/reports/final.cfm.

*Note: The National Clearinghouse on Autism Evidence and Practice (NCAEP) conducted the third iteration of a systematic review that examined the autism intervention literature, extending the coverage to articles published between 1990 and 2017. This report describes a set of practices that have clear evidence of positive effects with autistic children and youth. The intervention practices examined had to be behavioral, clinical, developmental, and/or educational in nature. Information about the study designs, participant characteristics, associated outcomes and implementation characteristics of the interventions were also outlined in the third iteration.

Reason for the Update of the Autism Spectrum Disorder (ASD) Advisory Committee's Report on Evidence Based Treatment. (January, 2021)

In our recommendations to the Office of the Arizona Governor's Policy Advisor for Health and Human Services in February of 2016, the Governor's ASD Advisory Committee included an integrative report of four independent systematic reviews of the evidence for treatment of individuals with ASD. One of the systematic reviews was the second iteration completed by The National Professional Development Center (NPDC) at the Frank Porter Graham Child Development Institute at University of North Carolina, Chapel Hill. In 2020, the National Clearinghouse on Autism Evidence and Practice (NCAEP) at the Frank Porter Graham Child Development Institute published the third iteration of their systematic review. This third systematic review of the autism intervention literature extended the coverage to articles published between 1990 and 2017. This new report is felt to provide a significant contribution to the literature on treatments with clear evidence of positive effects for children and youth with autism. The NCAEP publication on evidence-based treatments has been incorporated into our integrated report in January of 2021.

Executive Summary:

Evidence-Based Practices for Children, Youth, and Young Adults with Autism

Jessica R. Steinbrenner, Kara Hume, Samuel L. Odom, Kristi L. Morin, Sallie W. Nowell, Brianne Tomaszewski, Susan Szendrey, Nancy S. McIntyre, Şerife Yücesoy-Özkan, & Melissa N. Savage

The National Clearinghouse on Autism Evidence and Practice (NCAEP) conducted the third iteration of a systematic review that examined the autism intervention literature, extending the coverage to articles published between 1990 and 2017. This report describes a set of practices that have clear evidence of positive effects with autistic children and youth. The intervention practices examined had to be behavioral, clinical, developmental, and/or educational in nature. We also provide information about the study designs, participant characteristics, associated outcomes and implementation characteristics of the interventions.

Key Findings

These findings are based on synthesis of 545 new studies combined with 427 studies from the previous review, yielding a total of 972 articles focused on intervention practices for individuals with autism between birth and 22 years of age.

- The classification of these 972 articles led to 28 evidence-based practice categories.
- There are five new EBP categories in this review: Augmentative and Alternative Communication, Behavior Momentum Intervention, Direct Instruction, Music-Mediated Intervention, and Sensory Integration®
- A set of manualized interventions grouped within established EBP categories now themselves have sufficient evidence to be classified as evidence-based: PECS®, PRT, JASPER, Milieu Training, Project ImPACT, Stepping Stones/Triple P, Social Stories™, PEERS®, Mindreading, and FaceSay®.

Evidence-Based Practices

Antecedent-Based Interventions

Augmentative and Alternative Communication

Behavioral Momentum Intervention

Cognitive Behavioral/Instructional Strategies

Differential Reinforcement of Alternative, Incompatible, or Other Behavior

Direct Instruction

Discrete Trial Training

Exercise and Movement

Extinction

Functional Behavioral Assessment

Functional Communication Training

Modeling

Music-Mediated Intervention

Naturalistic Intervention

Parent-Implemented Intervention

Peer-Based Instruction and Intervention

Prompting

Reinforcement

Response Interruption/Redirection

Self-Management

Sensory Integration®

Social Narratives

Social Skills Training

Task Analysis

Technology-Aided Instruction and Intervention

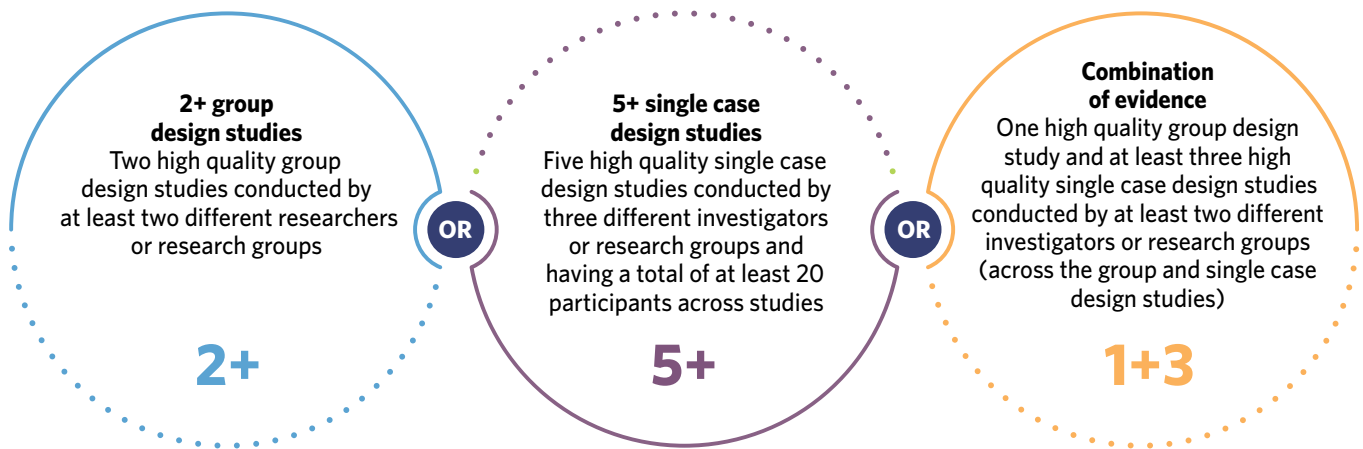
Time Delay

Video Modeling

Visual Supports

Find the EBP definitions at <http://go.unc.edu/2020EBPs>.

Figure 1. Criteria for qualification as an evidence-based practice



Study Design: Single case design studies made up 83% of the articles and group design studies made up 17% of the 972 articles. The percentage of group studies was higher for the recent review period, comprising 23% of the articles compared to only 9% of the articles in the previous review.

Participant Age: Most studies across review periods were conducted with 3-5-year-olds and 6-11-year-olds. However, in the more recent review period, there were substantial increases in studies conducted with 12-14-year-olds and 15-18-year-olds. Fewer studies were conducted with participants from birth-35 months and 19-22-year-olds.

Figure 2. Age of participants across review periods

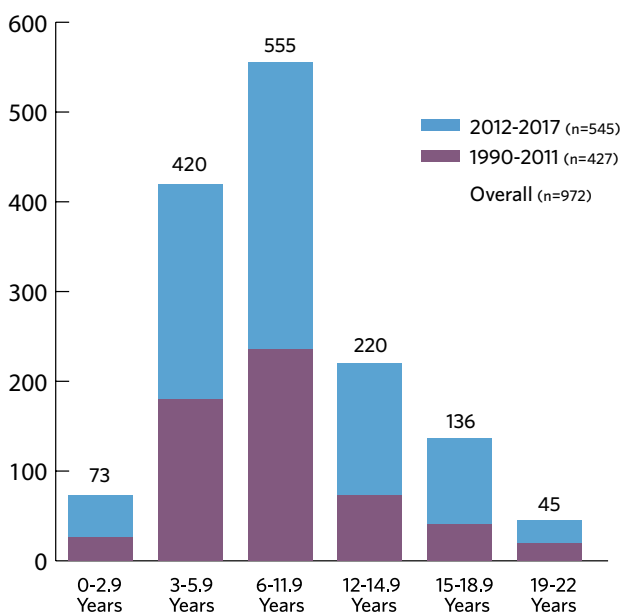
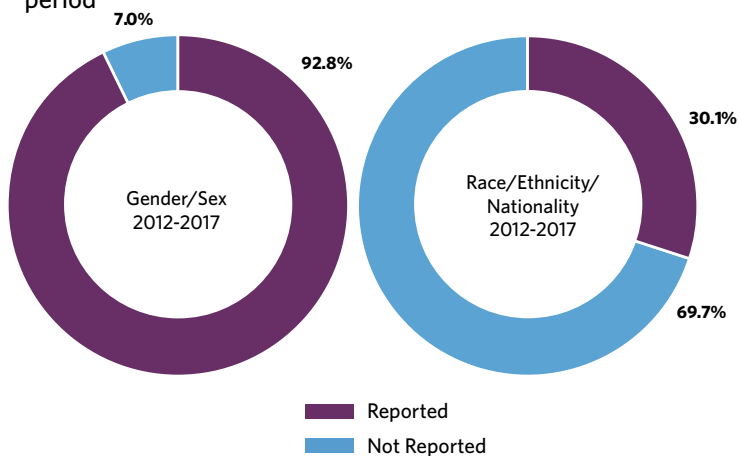






Figure 3. Percentage of studies reporting gender/sex and race/ethnicity/nationality data in 2012-2017 review period



Participant Gender: Data on the gender or sex of the participants were reported in 93% of studies in the 2012-2017 review period. In studies that reported this data, 84% of participants were male.

Participant Race/Ethnicity/Nationality: Less than 1/3 of all studies in the 2012-2017 review period reported data on race/ethnicity/nationality. For studies that reported data, about 6 out of every 10 participants were White and 1 out of every 10 participants were Black. All other groups had less than 10% representation among participants.

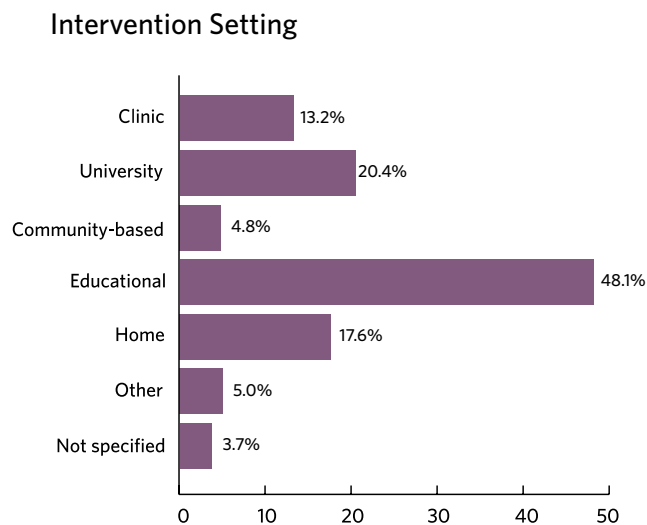
Participant Outcomes: There were 13 different types of outcomes reported in this review. Target skills relating to communication, social skills, and challenging behaviors were the most frequently reported outcomes. When examining differences between the two review periods, there were notable increases in studies that successfully targeted academic/pre-academic skills, vocational skills, and mental health.

- 
 - Communication
 - Social
 - Joint attention
 - Play
- 
 - Cognitive
 - School readiness
 - Academic/Pre-academic
- 
 - Adaptive/self-help
 - Challenging behavior
 - Vocational
 - Motor
- 
 - Mental health
 - Self-determination

Intervention Implementers: Implementers were primarily research staff, serving as interventionists in 52% of studies and coaches in 10% of studies. Educators and related service providers were each identified as implementers in 20% of studies, and parents were noted as implementers in 10% of studies.

Intervention Settings: About half of all studies occurred in educational settings, with fewer numbers occurring in clinic, university, community-based, and home settings. Nearly 4 out of every 5 studies were conducted in individual sessions (i.e., one-on-one).

Figure 4. Percentage of studies by intervention setting in 2012-2017 review period



Moving from Research to Practice: For families or practitioners interested in using the identified evidenced-based practices, the Autism Focused Intervention Resources and Modules (AFIRM) website has free eLearning modules that describe EBP procedures, steps for implementing the practices, fidelity checklists and more (<https://afirm.fpg.unc.edu>). The new information from this review will be used to update the modules to reflect the most current scientific information about focused intervention practices.



Funding for this work was provided by the Ireland Foundation, Mr. John E. Rucker, and the Frank Porter Graham Child Development Institute. Support for this project was provided by the Institute of Education Sciences, U.S. Department of Education through Grant R324B160038 (Postdoctoral Training Program on Special Education Research) awarded to University of North Carolina at Chapel Hill and the U.S. National Institutes of Health, Grant T32HD040127. The opinions expressed represent those of the authors and do not represent the any of the funders.

Evidence-Based Practices for Children, Youth, and Young Adults with Autism

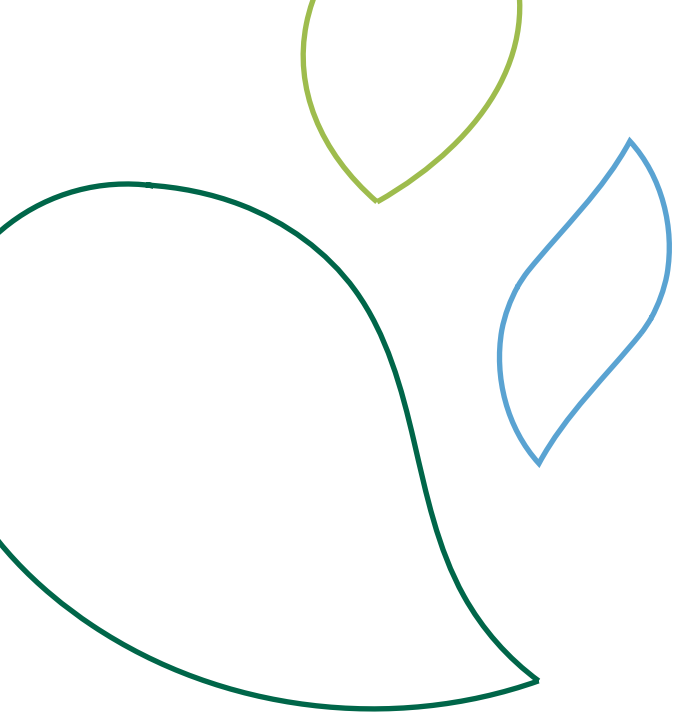
Jessica R. Steinbrenner, Kara Hume, Samuel L. Odom,
Kristi L. Morin, Sallie W. Nowell, Brianne Tomaszewski,
Susan Szendrey, Nancy S. McIntyre,
Şerife Yücesoy-Özkan, & Melissa N. Savage



National Clearinghouse on Autism Evidence
and Practice Review Team



FRANK PORTER GRAHAM
CHILD DEVELOPMENT INSTITUTE



Evidence-Based Practices for Children, Youth, and Young Adults with Autism Spectrum Disorder ©2020

Suggested Citation: Steinbrenner, J. R., Hume, K., Odom, S. L., Morin, K. L., Nowell, S. W., Tomaszewski, B., Szendrey, S., McIntyre, N. S., Yücesoy-Özkan, S., & Savage, M. N. (2020). Evidence-based practices for children, youth, and young adults with Autism. The University of North Carolina at Chapel Hill, Frank Porter Graham Child Development Institute, National Clearinghouse on Autism Evidence and Practice Review Team.



Advancing knowledge to
transform children's lives

TABLE OF CONTENTS

Acknowledgements..... 5

Chapter 1 Introduction..... 7

Chapter 2 Methods 15

Chapter 3 Results..... 25

Chapter 4 Discussion 41

References 54

Appendices..... 62

LIST OF TABLES & FIGURES

Tables

Table 2.1	Search terms	16
Table 2.2	List of databases	16
Table 2.3	Inclusion and exclusion criteria	19
Table 2.4	Reviewer information	21
Table 3.1	Evidence-based practices, definitions, and number of articles across review periods.....	28
Table 3.2	Focused intervention practices with some evidence	31
Table 3.3	Diagnosis and co-occurring conditions of participants across review periods.....	33
Table 3.4	Race/ethnicity/nationality and gender/sex of participants in 2012-2017 review period.....	35
Table 3.5	Outcomes identified across review periods.....	37
Table 3.6	Implementers of evidence-based practices in 2012-2017 review period.....	38
Table 3.7	Matrix of evidence-based practices, outcomes, and age categories	40
Table 4.1	Comparison of evidence-based practices across review periods	42
Table 4.2	Recategorization of practices with some evidence from 1990-2011 review period.....	44
Table 4.3	Overlap between evidence-based practices identified by NCAEP and NSP	49

Figures

Figure 1.1	Demographics of autism	9
Figure 1.2	Trends in autism intervention research.....	14
Figure 2.1	Search process	15
Figure 2.2	Criteria for identification as an evidence-based practice	23
Figure 3.1	PRISMA flow diagram for 2012-2017 review period	26
Figure 3.2	Number of articles included in each review period.....	27
Figure 3.3	Types of study designs.....	32
Figure 3.4	Age of participants across review periods	34
Figure 3.5	Percentage of studies reporting race/ethnicity/nationality and gender/sex data in 2012-2017 review period.....	35
Figure 3.6	Percentage of studies by group size and intervention setting in 2012-2017 review period	38
Figure 4.1	Research to practice process	50

ACKNOWLEDGEMENTS

This report was a group effort, supported by several funding streams and the volunteer efforts of many individuals. First, support for this project was provided by the Institute of Education Sciences, U.S. Department of Education through Grant R324B160038 (Postdoctoral Training Program on Special Education Research) awarded to University of North Carolina at Chapel Hill and the U.S. National Institutes of Health, Grant T32HD040127. The opinions expressed represent those of the authors and do not represent the U.S. Department of Education or the U.S. National Institutes of Health. Funding for this work was also provided by the Ireland Foundation, Mr. John E. Rucker, and the Frank Porter Graham Child Development Institute. The authors wish to acknowledge the support of the following individuals at the University of North Carolina and the Frank Porter Graham Child Development Institute who provided assistance, feedback, and technical support during the course of the project: Amelia Gibson, Kathleen Thomas, Ann Sam, Victoria Waters, Jeff Alpi, Andrea Ross, Stephanie Ridley, Luke Hayek, Lindsay Rentschler, Tara Regan, Coral Morrow, Crisma Emmanuel, Benjamin Carter, Juliet Alegria, Mary Tran, and Ashley Freuler. We appreciate colleagues from across the country who provided guidance, including: Erin Barton, Brian Boyd, Laura Hall, Jason Travers, Connie Wong, and Lisa Cain with Lisa Cain Design, <https://www.lisacaindesign.com/>.

We acknowledge the many external reviewers who donated their time and intellectual energy:

Jun Aj Ai	Esther Bubb	David N. Ellis
Khaled Alkherainej	Carol Burmeister	Buket Erturk
Fahad Alresheed	Rachel R. Cagliani	Grace Fantaroni
Abby Amacher	Kimberley Carlin	Cristan A. Farmer
Adriana Anderson	Amarie Carnett	Joshua D. Feder
Raequael Anderson	Paige J. Carter	Shannon Fee
Samantha Anderson	Janice Chan	Angel Fettig
Nicole Arrabito Izakson	Shelley E. Chapin	Robin Finlayson
Jonet Artis	Shelley Clarke	Larry B. Fisher
Natalie M. Badgett	Elena Clo'	Erin Fitzgerald Farrell
M. Y. Savana Bak	Holly Collinsworth	Andrea Ford
Carmen Bano	Eric Alan Common	Amy M. Foxman
Hannah Barton	Lori Ann Compagnone Dunn	Christina Fragale
Katherine Bellone Mount	Sarah K. Cox	Dawn W. Fraser
Elizabeth E. Biggs	Rebecca Crowe	Olivia Fudge Coleman
Hatice Bilmez	Jennifer M. Cullen	Danielle Funk
Marie E. Black	Marie Vivienne David	Trisha H. Gallagher
Kristen Bloch	Michele M. Davidson	Candace J. Gann
Sarah E. Blumberg	Lindsay L. Diamond	Stephanie J. Gardner
Christy M. Borders	Emily B. Doane	Nick Gelbar
Jessica Bowman	Claire Donehower Paul	Abbey George
Gulden Bozkus-Genc	Elizabeth R. Drame	Monique M. Germone
Tasia L. Brafford	Christine Drew	Samantha E. Goldman
Gina Braun	Ana Dueñas	Crystalyn Goodnight
Alice Bravo	Jodi M. Duke	Taryn Goodwin Traylor
Adam Brewer	Jackie Dwyer	Stacey Claire Grebe

Michelle S. Greenspan
Kristin R. Griffith
Emrah Gülboy
Courtney Gutierrez
April Haas
Jaclyn Hamlin
Jennifer Hamrick
Sarah G. Hansen
Shawna Harbin
Jill F. Harris
Clare Harrop
Joshua Harrower
Brianna Harvey
Kathryn A. Havercroft
Sandra G. Hierholzer
Susan Hoheisel
Katherine C. Holman
Ee Rea Hong
Sarah K. Howorth
Heartley B. Huber
Rebekah Hudock
Maria Lemler Hugh
Alisa M. Huynh
Glenda Hyer
Joan L. Ingram
Seyma Intepe-Tingir
Elizabeth M. Jackson
Bree Jimenez
Eliseo Jimenez
Allison Jobin
Christopher Jones
Irene T. Jones
Courtney D. Jorgenson
Janet Josephson
Maureen Kaniuka
Feyat Kaya
Elizabeth Kelly
Cristin D. Ketley
So Yeon Kim
Christina M. King
Vicki Madaus Knapp
Jennifer L. Kouo
Teri M. Krakovich
Lauren Kryzak
Megan Kunze
Gary Yu Hin Lam
Selena J. Layden
Debra Leach

Megan Ledoux
Yeunjoo Lee
Lauren M. LeJeune
Jenna L. Lequia
Patrick A. Leytham
Rebecca Lieberman-Betz
Xinyue Liu
Catharine Lory
Kristin Joannou Lyon
Mari C. MacFarland
Lee Ann Mahoney
Robbie J. Marsh
William P. Martin
Meaghan M. McCollow
Shelley A. McLean
Meara X. H. McMahan
Jennifer L. McMichael
Corrinne Mercer
Jessica Miller
Trish Momtsios
Michele A. Mooney
Carolena Moro
Michael J. Morrier
Reem Muharib
Joanna Mussey
Leslie C. Neely
Alicia Nehrkorn
Tiffany L. Otero
Cynthia E. Pearl
Corey Peltier
Kathleen A. Peterson
Kimberly Phillips
Elizabeth A. Pokorski
Kylah Pollard
Kristi M. Probst
Joshua M. Pulos
Sharmila QuenimHerr
Tim Reidman
Molly E. Reilly
Brandon J. Rennie
Kristin Riall
Sarah R. Rieth
Verity L. Rodrigues
Deborah L. Rooks-Ellis
Jenny R. Root
Dawn A. Rowe
Lisa Ruble
Jana Sarno

Haleigh M. Scott
Rachel L. Seaman
Allie Sheehan
Jenzi Silverman
Kathleen M. Simcoe
Bryan Alan Simmons
Sara M. Snyder
D. Renee Speight
L. Lynn Stansberry
Brusnahan
Erin M. Stewart
Sloan Storie
Tricia K. Strickland
Kristen Stricks
Andrea Suk
Lin Sun
Claire Swanson
Aileen Sweeney
Lauren Swineford
Rebecca Tagg
Mindy Tant
Deirdre A. Teaford
Julie L. Thompson
Cetin Topuz
Bhairvi Trivedi
Thelma E. Uzonyi
Leny D. Velasquez
Kristina Villacorta
Sanikan Wattanawongwan
Jennifer B. Webb
Melissa L. Weimer
Kelly Whalon
John J. Wheeler
Alicia N. White
Cathy M. Williams
Stacey Wilson
Patricia Wright
Gulnoza Yakubova
Hsiu-Wen Yang
Tracy Yang ShiHui
Xueyan Yang
Kelsey Young
Cheryl Young-Pelton
Jessica Zanton
Songtian Tim Zeng
Shuting Zheng

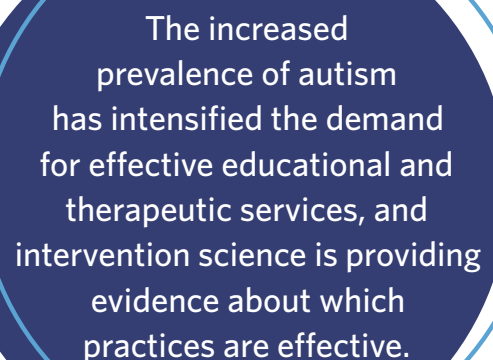
CHAPTER 1

INTRODUCTION

Autism is currently one of the most prominent and widely discussed human conditions. Its increased prevalence has brought it to the attention of society in the United States, with world wide recognition. Much discussion surrounds the conceptualization of autism as a disability or as a set of unique skills that can be seen as strengths (Urbanowicz et al., 2019). Although there is truth in both, there is also much verification that the life course for many individuals with autism, from infancy and into adulthood, is challenging for them and their families (Shattuck et al., 2018). In efforts to have a positive impact on this life trajectory, personnel in early intervention, schools, clinics, and other human service programs search for practices that could be most effective when working with children and youth with autism. The increased prevalence of autism has intensified the demand for effective educational and therapeutic services, and intervention science is providing mounting evidence about practices that positively impact outcomes.

The purpose of this report is to describe a set of practices that have clear evidence of positive effects with autistic children and youth. The report is the third iteration of a systematic review that has examined the intervention literature (Odom, Collet-Klingenberg, et al., 2010; Wong et al., 2014; 2015), extending the coverage to articles published between 1990 and 2017. In this first chapter, we will briefly discuss the current conceptualization of autism, explain the differences between focused intervention practices and comprehensive treatment models, provide a rationale for narrowing our review to the former, describe other reports that have identified evidenced-based practices, briefly describe our previous reviews, and lastly provide the rationale for conducting an updated systematic review.

In Chapter 2, we describe in detail the methodology followed in searching the literature, evaluating research studies, and identifying practices. In Chapter 3, the results of the systematic review are reported. We describe the practices along with the type of outcomes they generate and the age of children and youth for whom the outcomes were found. For the first time, race and ethnicity data of study participants will be highlighted, and features of the intervention setting and group size, along with the intervention implementer will also be described. In Chapter 4, we summarize the findings, discuss their relationship to other reviews, compare the current review process to the previous process, identify limitations of this review, and propose implications of study results for practice and future research. In the Appendix, each practice is described and specific studies that provide empirical support for the practice are listed.



The increased prevalence of autism has intensified the demand for effective educational and therapeutic services, and intervention science is providing evidence about which practices are effective.

A Word About Terminology

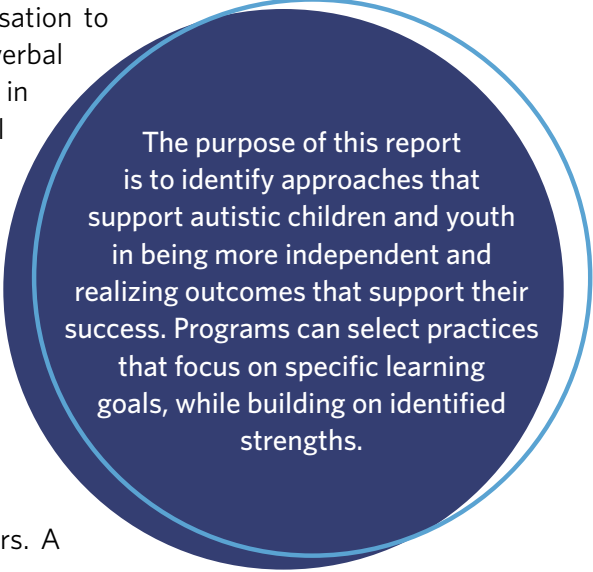
In this document, we will use a mixture of terminology when referring to autism and persons identified as autistic. A common form of description has been called “person-first”, in which the person (e.g., child) appears before the condition (e.g., autism), such as “child with autism”. Many professional journals require this form of identification. Many autistic self-advocates and advocacy groups now prefer an identify-first form, such as “autistic child” (Brown, 2011; Kenny et al., 2016). In addition, autistic advocates have spoken about the desirability of using the term “autism” rather than “autism spectrum disorder” (Brown, 2011). At the time of this writing, terminological issues have not been settled. To honor the advocates and professionals in the field, as well as other groups of individuals with disabilities who prefer the person-first term, we will be mixing terminology throughout the manuscript, using person-first and identity-first terminology with the primary descriptor being autism or autistic.

What is Autism?

The diagnostic characteristics of autism are impairments in social communication and the presence of restricted and repetitive behavior (American Psychiatric Association [APA], 2013; World Health Organization, 2015). Social communication includes social initiations (e.g., starting play or conversations with others), social reciprocity (e.g., taking turns in communications), synchrony (e.g., meaningfully linking conversation to the topic), and understanding and expressing appropriate nonverbal behavior such as gestures or facial expressions. Impairments in social communication can result in limited engagement in social interactions with peers and establishment of social relationships.

Restrictive and repetitive behavior (RRB) may include stereotypic behavior or speech, fixation on or interests in specific topics (e.g., trains, dinosaurs), and strict adherence to routines, schedules, or settings with discomfort when they change or are altered. These RRBs can impact individuals’ participation and engagement at home, at school, and in the community. In its most severe form, RRB is expressed in self-injurious behavior.

Not all children and youth with autism have all of these behaviors. A popular saying is that if you have seen “one autistic child you have seen one autistic child,” meaning that autism manifests in many different ways. Autism is a “spectrum” condition. In fact, in the official psychiatric diagnostic classification system in the United States, the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; APA, 2013), uses the term Autism Spectrum Disorder (ASD). Spectrum means that there is a range of abilities and impairments that occur for people with autism. Some children and youth with autism may have average or above average intelligence and need little support to function independently, while other children or youth may have severe intellectual disability, limited or no verbal communication, and very limited adaptive behavior. Because it is a spectrum condition with a range of abilities, the DSM-5 has also included the classification of the range of support an autistic individual would need to be successful in learning or living activities (i.e., “requiring support”, “requiring substantial support”, “requiring very substantial support”).



The purpose of this report is to identify approaches that support autistic children and youth in being more independent and realizing outcomes that support their success. Programs can select practices that focus on specific learning goals, while building on identified strengths.

In discussing abilities and disabilities, we are sensitive to the concerns about employing a “deficit” model perspective in characterizing autism, because individuals with autism have unique sets of skills upon which programs may be built (Donaldson et al., 2017). As noted, the purpose of this report is to identify approaches that support autistic children and youth in being more independent and realizing outcomes that support their success. Programs can select practices that focus on specific learning goals, while also building on identified strengths.

As noted, the official diagnostic classification system in the United States is the DSM-5, which the APA published in 2013. In the fourth and earlier editions of the DSM, a variety of conditions that the DSM-5 would now classify as ASD were identified as separate classifications. These include Asperger syndrome, autistic disorder, and pervasive developmental disorders not otherwise specified. Because our review of the literature extends to the years when previous diagnostic systems were in use, we include these and other similar descriptors in our selection criteria for articles in the review, as will be seen in the next chapter.

What We Know About the Demographics of Autism

The prevalence of autism, as noted, has increased markedly over the past two decades, rising from 2 in 10,000 in 1990 to between 1 in 50 and 1 in 88 children in 2012 (Blumberg et al., 2013; Centers for Disease Control and Prevention, 2018). In the most recent report from the U.S. Center on Disease Control and Prevention (CDC; Maenner et al., 2020; see Figure 1.1), the prevalence rate for children was 1 in 54, based on a sample of 8-year-old children. While the gender ratio has decreased slightly from four years ago when the CDC issued a previous report, boys are still four times more likely to be diagnosed than girls. For the first time, CDC data found no overall difference in the number of Black children identified with autism compared to White children. However, the number of Hispanic children identified with autism is still lower compared to White or Black children. Also, Maenner et al. reported that among children identified with autism who had intelligence quotient (IQ) scores available, approximately one-third also had intellectual disability.

The Importance of the Evidence-Based Practice Movement in Education and Human Services

Educational and human service programs for children and youth with autism should be based on scientific evidence of their effectiveness. The requirement is particularly important for children and youth with autism and their families. Many “treatment” program purveyors have made claims that their programs or practice can improve the lives of children with autism or even suggest that they have a cure (Siri & Lyons, 2014). A

Figure 1.1 Demographics of autism



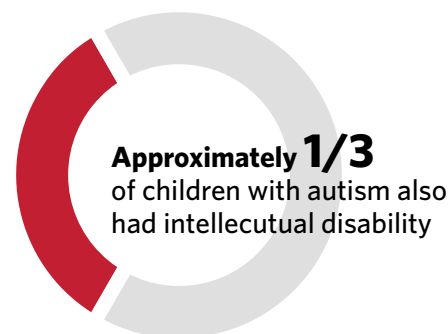
For every girl identified with autism, **4 boys were identified**



White & Black children were 1.2x more likely to be identified with autism than Hispanic children



Values indicate prevalence per 1,000 children

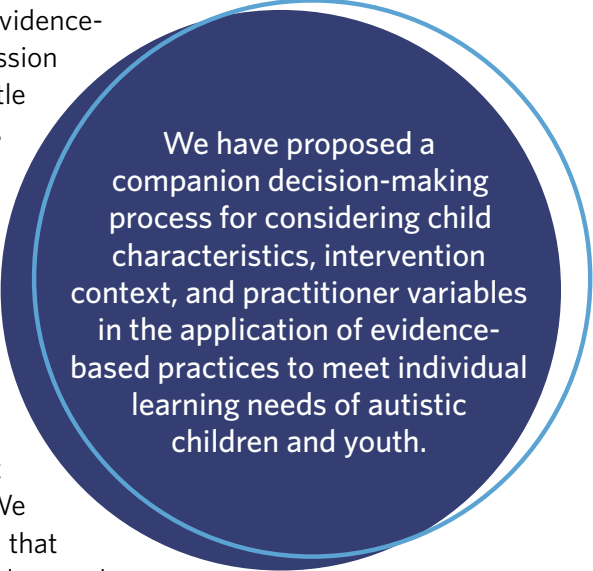


Adapted from Centers for Disease Control; Maenner et al., 2020

recent example of such a practice is the Rapid Prompting Method, a variation on the previously debunked Facilitated Communication that has gained popularity in the past two decades, and which in a recent systematic review yielded no evidence of effectiveness (Schlosser et al., 2019).

One can trace the contemporary focus on evidence-based practice to the early 1970s, when Archie Cochrane (1972) voiced the concern that health care workers in England were not basing their practice on scientific evidence. His efforts led to an initiative to conduct systematic reviews of the scientific literature in order to communicate practices that are based on science. This work led to the emergence of the evidence-based medicine movement, which gained further traction through the work of Sackett and colleagues in Canada (1996). An important contribution of this movement, which Cochrane also suggested, was that such identification and verification of evidence-based practice is just the first step. The application of such practices depends on the skills and wisdom of the health care worker in selecting appropriate practices for the individual and applying them with fidelity. Sackett et al. noted “Evidence based medicine is not “cookbook” medicine...it’s about integrating individual clinical expertise and the best external evidence.” (p. 71, Sackett et al., 1996).

Like the evidence-based medicine movement, in the application of science to interventions for autistic children and youth, the identification of evidence-based practice is also just the first step. Although there is much discussion about terminology and application (McGrew et al., 2016), there is little disagreement on the importance of selecting and using interventions that have empirical evidence of efficacy. As Sackett et al. noted, the decision-making process of the practitioner (e.g., health care worker, therapist, teacher) is crucial. Despite misinterpretations of our earlier reviews (Kasari & Smith, 2016), we have proposed a companion decision-making process consistent with Sackett et al. for considering child characteristics, intervention context, and practitioner variables (e.g., skills, preference) in the application of evidence-based practices to meet individual learning needs of autistic children and youth (National Professional Development Center on Autism Spectrum Disorder, 2017; Odom et al., 2013). We will describe our efforts to translate the science into information that practitioners can more readily apply in their work with autistic children and youth in Chapter 4, but at this point, pinning down the definition of intervention practice is important.



We have proposed a companion decision-making process for considering child characteristics, intervention context, and practitioner variables in the application of evidence-based practices to meet individual learning needs of autistic children and youth.

Evidence-Based Intervention Approaches

Two broad classes of interventions appear in the research literature (Smith, 2013), and we have identified them as comprehensive treatment models and focused intervention practices. Although the current review concentrated on the latter class of interventions, it is important to describe both in order to distinguish the two.

Comprehensive Treatment Models

Comprehensive treatment models (CTMs) consist of a set of practices designed to achieve a broad learning or developmental impact on the core features of autism (Odom, Boyd, et al., 2010). In their review of education programs for children with autism, the National Academy of Science Committee on Educational Interventions for Children with Autism (National Research Council, 2001) identified 10 CTMs. Examples included the UCLA Young Autism Program by Lovaas and colleagues (Smith et al., 2000), the TEACCH program developed by Schopler and colleagues (Marcus et al., 2000), the LEAP model (Strain & Hoyson, 2000), and the Denver model (Rogers et al., 2000). In a follow-up to the National Academy review, Odom, Boyd, et al. (2010) identified 30 CTM programs operating within the U.S. These programs were characterized by organization (i.e., around a conceptual framework), operationalization (i.e., manualized procedures), intensity (i.e., substantial number of hours per week), longevity (i.e., occur across one or more years), and breadth of outcome focus (i.e., multiple outcomes such as communication, behavior, social competence targeted; Odom et al., 2014).

Focused Intervention Practices

In contrast, focused intervention practices are designed to address a single skill or goal of a learner with autism (Odom, Collet-Klingenberg, et al., 2010). These practices are operationally defined, address specific learner outcomes, and tend to occur over a shorter time period than CTMs (i.e., until the individual goal is achieved). Examples include discrete trial teaching, visual supports, prompting, and video modeling. Focused intervention practices could be considered the building blocks of educational programs for children and youth with autism, and they are highly salient features of the CTMs just described. For example, peer-based intervention (Odom, 2019), is a key feature of the LEAP CTM (Strain & Bovey, 2011).

The purpose of the current review is to identify focused intervention practices that have evidence of efficacy in promoting positive outcomes for learners with autism. Focused intervention practices that meet the evidence criteria specified in the next chapter are designated as evidence-based practices (EBPs). Teachers and other service providers may select these practices when designing an individualized education or intervention program because of the evidence that they produce outcomes similar to the goals established for children and youth with autism. Odom and colleagues (2012) described this as a technical eclectic approach and the National Professional Development Center on ASD (NPDC) has designed a process through which these practices could be systematically employed in early intervention and school-based programs (Cox et al., 2013).

Previous Literature Reviews of EBPs for Children and Youth with Autism

The historical roots of evidence-based practice for learners with autism are within the evidence-based medicine movement and the formation of the Cochrane Collaboration to host reviews of the literature about scientifically supported practices in medicine, both described previously. The work of the Campbell Collaboration (<http://www.campbellcollaboration.org/>) and the What Works Clearinghouse (<http://ies.ed.gov/ncee/wwc/>) exemplify the subsequent adoption of the evidence-based conceptual approach in the social sciences. In the 1990s, the American Psychological Association Division 12 established criteria for classifying an intervention practice as efficacious or “probably efficacious,” which provided a precedent for quantifying the amount and type of evidence needed for establishing practices as evidence-based (Chambless & Hollon, 1998; Chambless et al., 1996).

Before the mid-2000s, the identification of EBPs for children and youth with autism was accomplished through narrative reviews by an individual or set of authors or organizations (e.g., Simpson, 2005). Although these reviews were systematic and useful, they did not follow a stringent review process that incorporated clear criteria for including or excluding studies for the reviews or organizing the information into sets of practices. In addition, many traditional systematic review processes, such as the Cochrane Collaborative (<https://www.cochrane.org/>) or Project AIM (Sandbank et al., 2020), have only included studies that employed a randomized experimental group design (also called randomized control trial or RCT) and have excluded single case design (SCD) studies. By excluding SCD studies, such reviews (a) omit a vital experimental research methodology recognized as a valid scientific approach (What Works Clearinghouse, 2020) and (b) eliminate the major body of research literature on interventions for children and youth with autism.

To date, only the National Professional Development Center on ASD (NPDC) at the Frank Porter Graham Child Development Institute at the University of North Carolina at Chapel Hill and National Standards Project at the National Autism Center have conducted comprehensive reviews of focused intervention practices for children and youth with autism. Both reviews followed a systematic process for accessing the literature, included group and SCD studies, evaluated the methodological quality before including (or excluding) articles in their review, and identified a specific set of interventions that have evidence of efficacy. In addition, each review has been through two iterations, with this report describing the third iteration of the NPDC review (i.e., now conducted by the National Clearinghouse on Autism Evidence and Practice). We describe each review in the subsequent sections.

National Standards Projects (NSP)

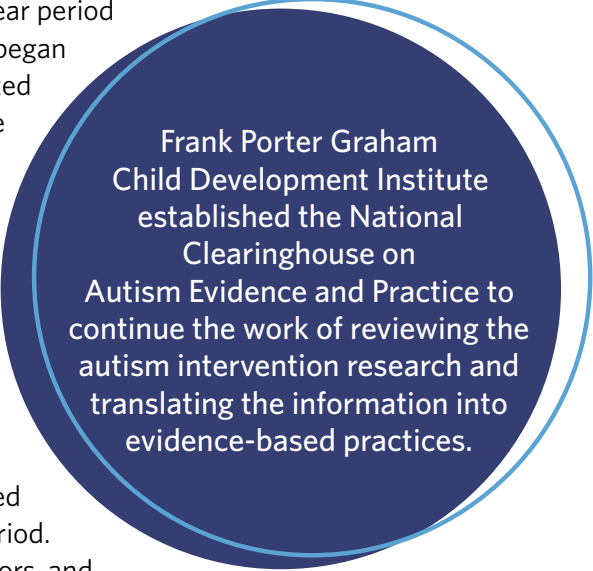
In 2015, the National Standards Project (NSP; National Autism Center, 2015) published Phase 2 of their comprehensive systematic review. In Phase 1, their search process accessed articles from the early years of experimental intervention research for autistic children and youth (1957) through September 2007 (National Autism Center, 2009). Peer-reviewed journal articles were included if the interventions were implemented in school, home, community, vocational or clinic settings, included children with autism who did not have significant co-occurring conditions, and included statistical analyses (for group design) or graphic displays (for single case designs) of their data. The NSP staff recruited and trained a national set of reviewers, using a standard evaluation process. This evaluation process generated a “strength of evidence” score, which the NSP staff used to determine which practices were evidence-based. The Phase 1 search, after excluding articles that did not meet their criteria, yielded 775 studies. They identified 11 practices

as established treatments. In addition, they identified 22 practices as emerging treatments, meaning that there was some evidence but it was not strong enough to meet the established criteria. They also found five practices for which researchers demonstrated, experimentally, that there were no effects, and no practices they would characterize as ineffective/harmful.

In Phase 2, the NSP investigators followed the same process in searching and evaluating articles as occurred in Phase 1 (National Autism Center, 2015). They incorporated articles published from September 2007 to February 2012. Their systematic review identified 351 new, acceptable articles. In addition, the center expanded their review to include adults with autism, finding 27 articles for that age group. Their analyses of the scientific merit scores and sorting of interventions generated 14 practices for children and youth with autism that met their criteria for evidence-based. In addition, they found 18 practices categorized as emerging (i.e., some positive evidence but not enough to qualify as evidence-based) and 13 interventions with unestablished effects. For adults, they found one intervention (i.e., behavioral intervention) with sufficient scores to be categorized as evidence-based, one intervention identified as emerging (i.e., vocation package), and four interventions that were unestablished (i.e., cognitive behavioral, music therapy, sensory integration, and modeling).

NPDC and the National Clearinghouse on Autism Evidence and Practice

In their initial review, NPDC investigators also conducted a review of the intervention literature, although it only included articles published over the 10-year period from 1997 to 2007 (Odom, Collet-Klingenberg, et al., 2010). They began with a computer search of the literature, first using autism and related terms for the search and specifying outcomes. They then used the research design quality indicator criteria established by the Council for Exceptional Children (CEC)-Division for Research (Gersten et al., 2005; Horner et al., 2005) to evaluate articles for inclusion or exclusion from the review. This review yielded 175 articles. They content-analyzed the intervention methodologies, created intervention categories, and sorted articles into those categories. Adapting criteria from the Chambless et al. (1996) group, they found 24 focused intervention practices that met criteria for being evidence-based. For some practices that were developed in the 1980s, foundational articles from the earlier time period were included if they were routinely cited in the articles from the 10-year time-period. To translate this scientific review into practice, NPDC investigators and staff collaborated with staff at the Ohio Center for Autism and Low Incidence Disorders (OCALI) to develop online training modules.



Frank Porter Graham
Child Development Institute
established the National
Clearinghouse on
Autism Evidence and Practice to
continue the work of reviewing the
autism intervention research and
translating the information into
evidence-based practices.

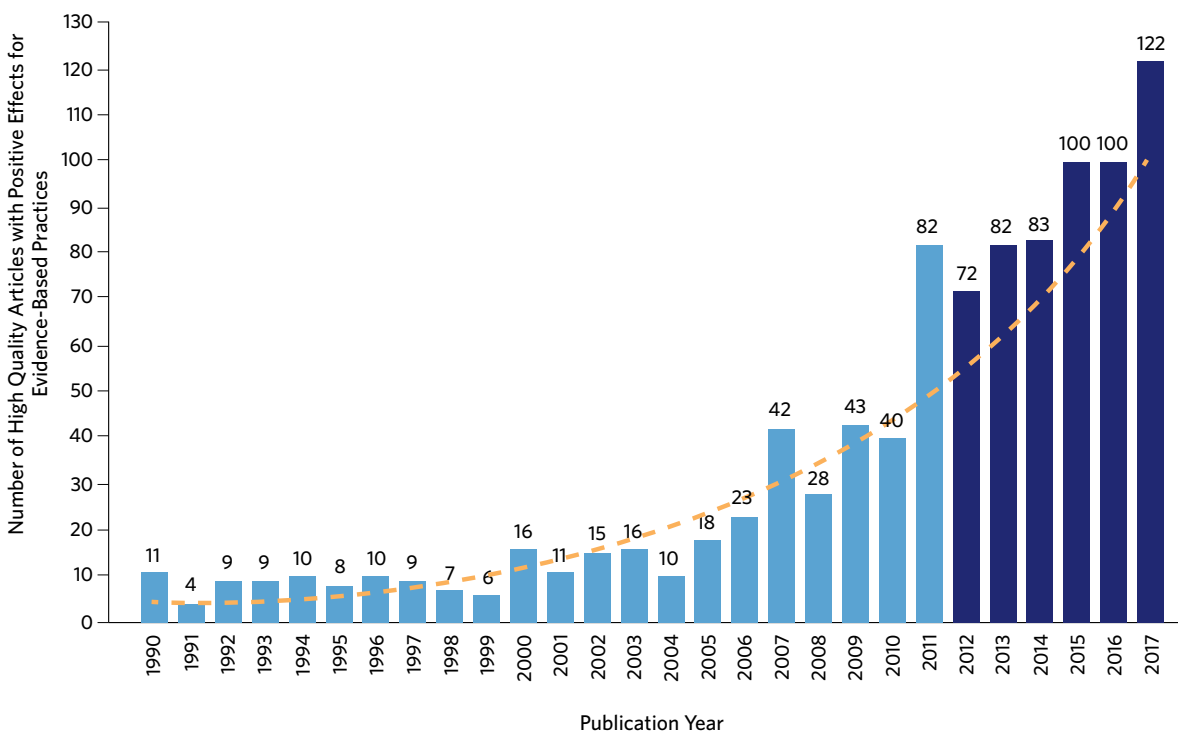
NPDC investigators conducted an update of their initial review, which they published in a report (Wong et al., 2014) and a journal article (Wong et al., 2015). This review differed from the first review in several ways. First, the authors used a more comprehensive search strategy to access the data in collaboration with research librarians at the UNC Health Science Library. Second, they extended the coverage of the literature, including peer-reviewed journal articles published between 1990 and the end of 2011. Third, they revised their methodological review criteria to include current criteria established by What Works Clearinghouse and developed standardized methodological review protocols. Fourth, they recruited and trained a national panel of 159 reviewers to evaluate journal articles. From an initial set of 29,105 articles, NPDC investigators identified 456 articles judged methodological acceptable, which they then sorted into practices following a constant

comparative research methodology. From this process, they identified 27 focused interventions that meet the criteria for evidence-based. To translate this information into practical procedures, our research team developed the Autism Focused Intervention Resources and Modules (AFIRM, <https://afirm.fpg.unc.edu>), which will be described further in the discussion (Sam et al., 2019). The funding for NPDC and AFIRM, from the Office of Special Education Programs, ended in 2016. At that time, the Frank Porter Graham Child Development Institute established National Clearinghouse on Autism Evidence & Practice (NCAEP, pronounced en-CAPE) to continue the NPDC work of reviewing the autism intervention research and translating the information into EBPs.

Rationale for Current NCAEP Review

The autism intervention literature does not stand still; in fact, it is accelerating rapidly. As noted at the outset of this chapter, autism has captured the attention of the world, and particularly the community of intervention scientists. In the last six years, new journals have been initiated and the volume of articles published has expanded substantially. In the previous review (Wong et al., 2014), the initial cyber search generated over 29,000 articles published between 1990 and 2011. As will be seen in the third chapter, the current cyber search initially identified more articles published over the subsequent six years covered in the current search. Figure 1.2 contains a graph of the number of articles meeting methodological criteria by year from 1990 through 2017. A positive and accelerating trend across time exists. Such an active literature requires ongoing surveillance and evaluation to keep up with the research documenting possible new EBPs and continuing to validate existing EBPs. This review has been designed to address just such an objective.

Figure 1.2 Trends in autism intervention research

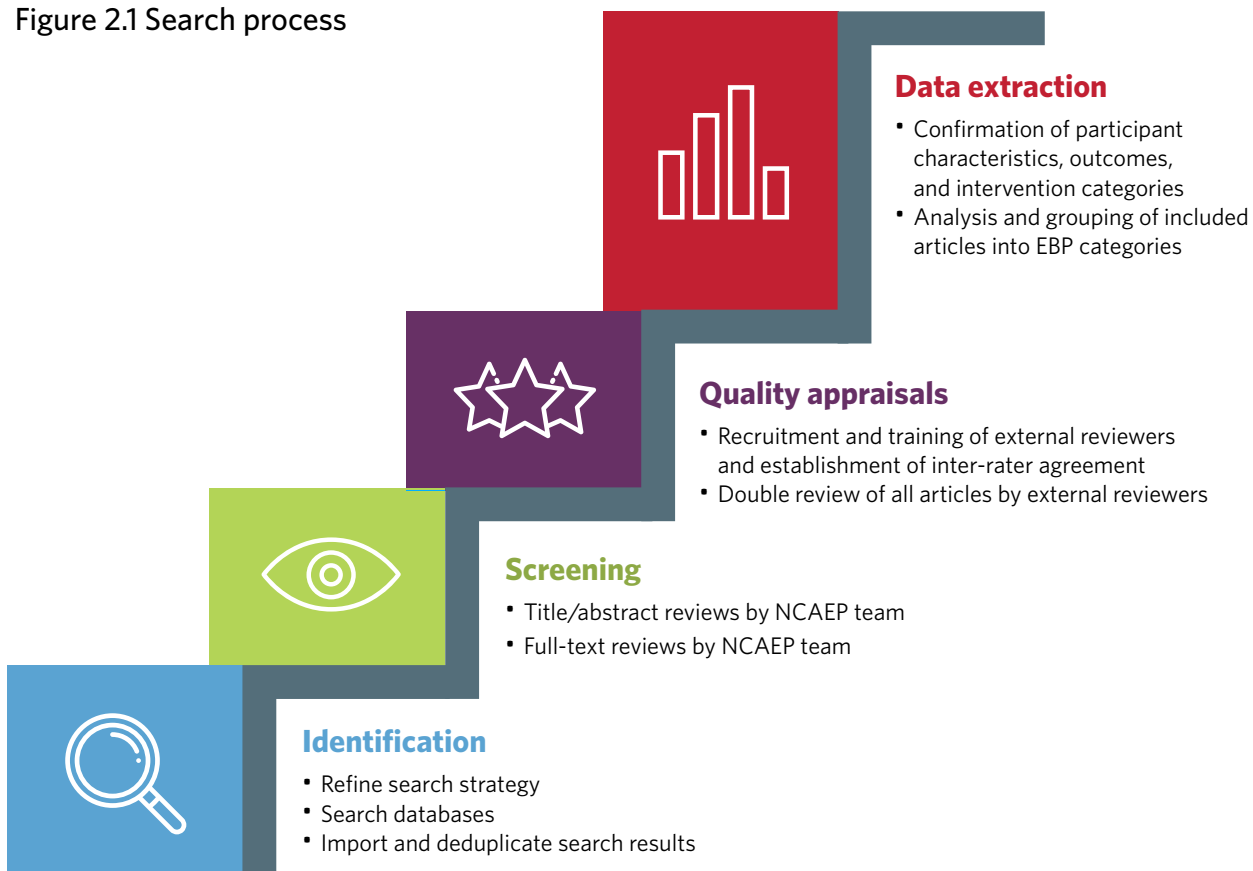


CHAPTER 2

METHODS

In this chapter, we describe the methodology utilized in this systematic review of EBPs. An overall summary of the search process is followed by a description of inclusion/exclusion criteria for studies. Reviewer training, the review process, and the process for identifying EBPs conclude the chapter. Our team carried out the systematic review in four phases: identification, screening, quality appraisal, and data extraction (see Figure 2.1). Since this search was an update to the previous systematic review (Wong et al., 2014), the team used methodology consistent with the previous review (e.g., quality appraisal tools) but also updated the methodology to reflect changes in the field (e.g., search terminology) and current review standards (e.g., double review for quality appraisals).

Figure 2.1 Search process



Identification

The identification phase included refining search terms, searching the databases, and importing and deduplicating the results. The NCAEP team initially met with a research librarian from the University of North Carolina at Chapel Hill to review the databases and search terms from the previous systematic review and update as needed based on changes to the databases, library science practices and the field of autism research. The previous review included two primary categories of search terms: terms to capture the diagnostic category of autism and terms to capture studies that were about interventions. The search strategy was intentionally broad to be as comprehensive as possible. The basic search terms are in Table 2.1. One example of a term that was changed for the updated review is the addition of the abbreviation “ASC” to capture the recently emerging terminology of “autism spectrum condition”.

Table 2.1 Search terms

ASD related	Intervention related
Autism OR Asperger OR autistic OR pervasive developmental disorder OR ASD OR ASC OR PDD OR PDD-NOS	Intervention OR practice OR therapy OR therapeutic OR treatment OR strategy OR program OR procedure OR method OR education OR curriculum

Our team searched nine databases that represented a wide range of disciplines (see Table 2.2). The databases were the same as the previous review with two exceptions: we used PubMed instead of MEDLINE, as it includes MEDLINE but is also broader in searches. Also, we used Academic Search Premier instead of Academic Search Complete because of a change in the UNC Library System subscription. Additionally, the Web of Knowledge database changed names to Web of Science since the previous review. An NCAEP team member with a degree in library science searched each of the nine databases with the terminology just noted for articles published from January 1, 2012 to December 31, 2017. We imported all search results into EndNote for deduplication. Following deduplication, all search results were imported into Covidence, an online software program designed specifically to support systematic reviews.

Table 2.2 List of databases

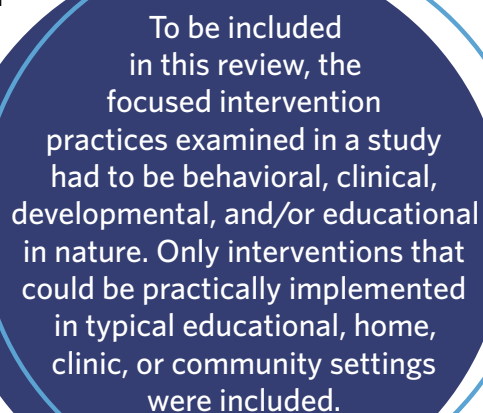
- Academic Search Premier
- Cumulative Index to Nursing and Allied Health Literature (CINAHL)
- Excerpta Medica Database (EMBASE)
- Educational Resource Information Center (ERIC)
- PsycInfo
- PubMed
- Social Work Abstract
- Sociology Abstracts
- Web of Science

Screening and Inclusion/Exclusion Criteria

Inclusion and exclusion criteria were developed at the outset of this project (see Table 2.3). In the current review, only peer-reviewed articles published in journals or available in a prepublication format online were included (i.e., dissertations or other grey literature were excluded). Articles had to have been published between 1990 and 2017, which includes both the previous review period (1990-2011) and the current review period (2012-2017). Only articles published in English language journals were included and the articles had to provide an original test of the efficacy of an intervention. During the screening phase, articles that included secondary data analyses or follow-up analyses were included, though secondary data and follow-up analyses were linked to original studies in later phases to avoid inflating the evidence base. Related to the content of the articles, we employed a conceptual framework followed by the Cochrane Collaboration and others, which focuses on Participants, Interventions, Comparison, and Outcomes, (PICO, <https://linkeddata.cochrane.org/pico-ontology>).

Population/Participants

To qualify for the review, the participants in a study had to be between birth and 22 years of age and identified as having autism spectrum disorder (ASD), autism, Asperger syndrome, pervasive developmental disorder (PDD), pervasive developmental disorder-not otherwise specified (PDD-NOS), or high-functioning autism (HFA). Studies with participants identified as “at risk for autism” were not included in the review. Studies with autistic participants who had co-occurring conditions were included in this review. These conditions could be intellectual disability, genetic syndrome (e.g., Fragile X, Down syndrome), seizure disorder, mental health conditions (e.g., anxiety, depression, obsessive compulsive disorder), attention deficit/hyperactivity disorder (i.e. ADHD), physical disability (e.g., cerebral palsy, orthopedic impairment), hearing and/or visual impairment, or learning disability.



To be included in this review, the focused intervention practices examined in a study had to be behavioral, clinical, developmental, and/or educational in nature. Only interventions that could be practically implemented in typical educational, home, clinic, or community settings were included.

Interventions

To be included in this review, the focused intervention practices examined in a study had to be behavioral, clinical, developmental, and/or educational in nature (i.e., these were the independent variables of the studies). Studies in which the interventions were only medications or nutritional supplements/special diets (e.g., melatonin, gluten-casein free, vitamins) were excluded from the review. In addition, only interventions that could be practically implemented in typical educational, home, clinic, or community settings were included. As such, intervention practices requiring highly specialized materials, equipment, or locations unlikely to be available in most educational, clinic, community, or home settings were also excluded (e.g., dolphin therapy, hippotherapy, hyperbaric chambers). The intervention should be able to be implemented by teachers, clinicians, related service providers, families, community providers, or others that would typically provide behavioral, clinical, developmental, or educational intervention, though interventions that were implemented by research staff in studies were still included in the review. Interventions requiring the supervision of trained medical personnel were excluded (e.g., chelation, neurofeedback, or acupuncture/acupressure).

Comparison

For inclusion in the review, the design of the study had to compare an experimental condition in which a focused intervention practice was implemented with a control (i.e., focused intervention practice not implemented) or comparison (i.e., services as usual, alternative intervention practice) condition. All relevant features of the comparison condition had to be described to allow for a clear understanding of the differences between the conditions. If the control was “services as usual” instruction, the instructional or classroom environment had to be described.

Outcomes

Additionally, focused intervention practices had to generate behavioral, developmental, academic, vocational, or mental health outcomes (i.e., these were dependent variables in the studies). These outcome data could be discrete behaviors (e.g., social initiations, stereotypes) assessed observationally, or by ratings of behavior or learner performance (e.g., parent or teacher questionnaires), standardized assessments (e.g., nonverbal IQ tests, developmental assessments), and/or informal assessment of student academic performances (e.g., percentage of correct answers on an instructional task, time). Studies reporting both behavioral and health/medical outcomes of participants were included, but studies only reporting physical health outcomes (e.g. BMI) were excluded from the review. Studies that targeted only caregiver and/or staff outcomes were excluded, as were studies that only looked at how caregiver/staff outcomes mediated student outcomes.

Study Design

Finally, studies included in the review had to employ a group design, or single case design (SCD) to test the efficacy of focused intervention practices. Adequate group designs included randomized control trials (RCT), sequential multiple assignment randomized trials (SMART design), quasi-experimental designs (QED), or regression discontinuity designs (RDD) that compared an experimental/intervention group receiving the intervention to at least one other control or comparison group that did not receive the intervention or received another intervention (Shadish et al., 2002). SCDs had to demonstrate the functional relationships between the intervention (or independent variable) and the autistic child/youth outcomes (Kazdin, 2011). Acceptable SCDs for this review were withdrawal of treatment (ABAB), concurrent multiple baseline, multiple probe, alternating treatment, and changing criterion designs (Horner & Odom, 2014), as well as SCDs that included hybrid designs. Studies that were solely descriptive, examined only predictors, reviewed existing literature, or were meta-analyses were excluded. In addition, non-concurrent multiple baseline studies and parametric analyses without a baseline condition were also excluded.

Initial Screening

Our team followed standard systematic review procedures in screening articles to locate those that met our inclusion/exclusion criteria. We screened the articles in two steps: a title/abstract screening and a full-text screening. Prior to each step of the screening process, team members participated in two separate 1-hour trainings to review the inclusion and exclusion criteria and procedures for each step of screening.

For the title/abstract screening, team members reviewed the title and abstract of the article and indicated if the article should be excluded or further reviewed in a full-text screening. We completed the title/abstract screening using single reviewers. Following the title/abstract screening, the team gathered the full-text version of all articles that were not excluded. During the full-text screening, team members indicated if an article should be included or excluded. If an article was excluded, the reviewing team member indicated a reason for exclusion. We completed the full-text screening using single reviewers.

Table 2.3 Inclusion and exclusion criteria

Category	Inclusion	Exclusion
Literature	<ul style="list-style-type: none"> Article published (or online prepublication) in peer-reviewed journal 	<ul style="list-style-type: none"> Grey literature such as dissertations, conference presentations or proceedings
Language	<ul style="list-style-type: none"> Article published in English 	<ul style="list-style-type: none"> Article published in non-English journal
Intervention	<ul style="list-style-type: none"> Intervention was focused intervention practice Intervention was behavioral, developmental, academic and/or vocational 	<ul style="list-style-type: none"> Intervention was comprehensive treatment program Intervention was medical or psychopharmacological
Outcomes	<ul style="list-style-type: none"> Outcomes were behavioral, developmental, academic, mental health, or vocational for autistic children and youth 	<ul style="list-style-type: none"> Outcomes were physical health, neuroimaging, or EEG Only outcomes for family or caregivers reported
Study Design	<ul style="list-style-type: none"> Article examined efficacy of intervention with group or single case design 	<ul style="list-style-type: none"> Article primarily descriptive or correlational Article tested moderation of effects on previously published or nonsignificant main effects
Population/ Participants	<ul style="list-style-type: none"> Some participants identified as autistic Some participants between birth and 22 years of age 	<ul style="list-style-type: none"> Outcomes for participants with autism/in specified age range were not presented separately

Quality Appraisal

Once articles were screened for inclusion based on their format (e.g., peer-reviewed journal) and content (e.g., autistic participants, age range), they were then evaluated for the acceptability of their experimental methodology. At this phase of the review, we recruited a national cadre of external reviewers who were trained to criterion and then evaluated the methodology of each article.

Recruitment

The NCAEP team contacted reviewers from the previous review to let them know about the opportunity to review articles for the current review. Leaders of doctoral training programs in autism research were contacted via email to ask that they distribute information about reviewing for the current review to their doctoral students and their faculty colleagues. Prominent researchers in behavioral, developmental, and educational research, who were not part of doctoral training programs were also contacted. In addition, professional organizations (e.g., Association for Behavior Analysis International, CEC's Division on Autism and Developmental Disabilities) assisted in disseminating the solicitation for reviewers. Our team also used project social media outlets to post announcements about recruitment. Last, an open solicitation was posted on the NCAEP website. The criteria for qualifying for the subsequent training was that the individual had to have a graduate degree, had to have finished coursework in experimental group design and/or single case design research, and had to have had coursework related to and/or experience working with individuals with autism. The incentives provided were that their name would be listed as a reviewer in this report. Also, any reviewers who were Board Certified Behavior Analysts could count the hours allocated to the training and review toward continuing education credit as certified by the Behavior Analysis Certification Board.

Reviewer Training






For both design types (group and SCD), the NCAEP team developed training procedures for external reviewers that included an online training module describing the project and explaining each item on the review protocols. Additionally, examples and non-examples of each protocol item were presented in the training. The training modules also included instructions for coding descriptive features of articles that were determined to have acceptable experimental methodology. Reviewers coded participant information (diagnosis, co-occurring conditions, and age), intervention information (name, description, and intervention category), and outcomes (variable name, description, and outcome category). Reviewers could also identify any concerns or issues encountered during the article review process.

Reviewers who met the qualifications indicated whether they wanted to review SCD studies, group design studies, or both. Based on that decision, they completed the respective (i.e., group or single case) design training module. Following training, they coded a "master-file" article (i.e., an article in which correct review answers had been established by our team) that employed the respective design. For the review of the master-file study, reviewers had to meet an 80% inter-rater agreement criterion for study elements. If potential reviewers did not meet the criteria for posttest or sample study review, they were allowed to complete the task a second time (i.e., with a different master-file article for the article review). Reviewers who expressed an interest in reviewing both group and SCD articles had to complete training and reach inclusion criteria for both types of studies.

Two hundred and twenty-one reviewers completed the training and met inter-rater agreement criteria with the master code files. Most reviewers received their degrees in the area of special education or applied behavior analysis and were faculty, graduate students, or practitioners. The majority of reviewers had professional experience in a classroom, clinic, or home setting and conducted research related to individuals with ASD. Details about the reviewers can be found in Table 2.4.



Table 2.4 Reviewer information

	Types of articles reviewed	
	Single case design	122
	Group design	21
	Single case and group design	78
		221
	Degree level	
	Master's degree and/or current graduate student	120
	Doctorate degree	101
		221
	Degree area	
	Applied behavior analysis	33
	Education	6
	Psychology (e.g., school, clinical, developmental)	27
	Special education	119
	Other (e.g., SLP, OT, Psychiatry)	36
		221
	Current Position	
	Faculty	81
	Researcher	8
	Graduate student	73
	Practitioner/administrator	55
	Postdoctoral fellow	4
		221
	Experience with autism*	
	Providing intervention in classroom setting	89
	Providing intervention in clinical setting	73
	Providing intervention in home setting	87
	Conducting autism research	79
	Teaching college level course on autism	33
		361

*Reviewers could report more than one type of experience with autism

Review Protocols and Process

Protocols for reviewing group design and SCD studies used to determine methodological acceptability were developed in our previous review (see Appendices 1 and 2). The protocols in the 1990-2011 review drew from the methodological quality indicators developed by Gersten and colleagues (2005) for group design and Horner et al. (2005) for SCD, as well as the review guidelines established by the WWC. Protocols went through two iterations of pilot testing within the research group and then were reviewed by two national leaders in research methodology and intervention research, with expertise in SCD and group design, respectively. From this process the protocols were finalized and formatted for online use. Only minor updates were made in the current review (i.e. include SMART design as a design option).

After finalization, the review protocol and ten articles were sent to each reviewer. They first completed a set of screening questions about the articles (e.g., type of study design) followed by the quality review items for SCD or group design. If an article met all individual quality items on the review protocol, reviewers next noted whether the study had positive effects for autistic participants on at least one outcome variable and listed the variables with positive effects. Last, reviewers described the key features of the study (e.g., participant characteristics) and the intervention procedures. Each article was independently reviewed by two external reviewers. Once both reviews for a given article were complete in the online system, the NCAEP team identified any disagreements between the reviewers related to study quality and effects. If needed, an NCAEP team member was assigned to complete a third review and make a final determination about quality and/or effects.

Inter-Rater Agreement

The NCAEP team collected inter-rater agreement for 1,085 articles. The formula for inter-rater agreement was total agreements divided by agreements plus disagreements multiplied by 100%. Agreement was calculated for (a) individual quality review items on the review protocol, (b) summative evaluation of whether a study met or did not meet quality criteria, and (c) evaluation of whether or not studies that met quality criteria had positive effects for autistic participants on at least one outcome variable. Mean inter-rater agreement on the individual study quality evaluation criteria was 85% (range = 55-97%) for group design articles and 93% (range = 87-97%) for SCD articles, generating a total mean item agreement of 90%. Mean inter-rater agreement for summary decisions about article inclusion was 65% for group design articles and 80% for SCD articles, generating a total agreement of 73%. Of the articles that met inclusion criteria and were evaluated to have positive effects on at least one outcome variable, there was 86% agreement for group design articles and 74% agreement for SCD articles, yielding a total agreement of 80%.

Data Extraction

During the quality appraisal, the external reviewers also coded information about participants (age, diagnosis, comorbidities), outcomes (identifying domain areas of individual outcomes with positive effects), and intervention. All participant and outcome data were confirmed by the NCAEP team. During this process, the NCAEP team also coded data about the gender and the race, ethnicity, and nationality of participants, as well as information about setting and implementers involved in the intervention. Due to the complexity and importance of the data extraction for interventions, the data extraction was reviewed internally in a two-step process. First, team members thoroughly reviewed each article to identify primary interventions. In this identification

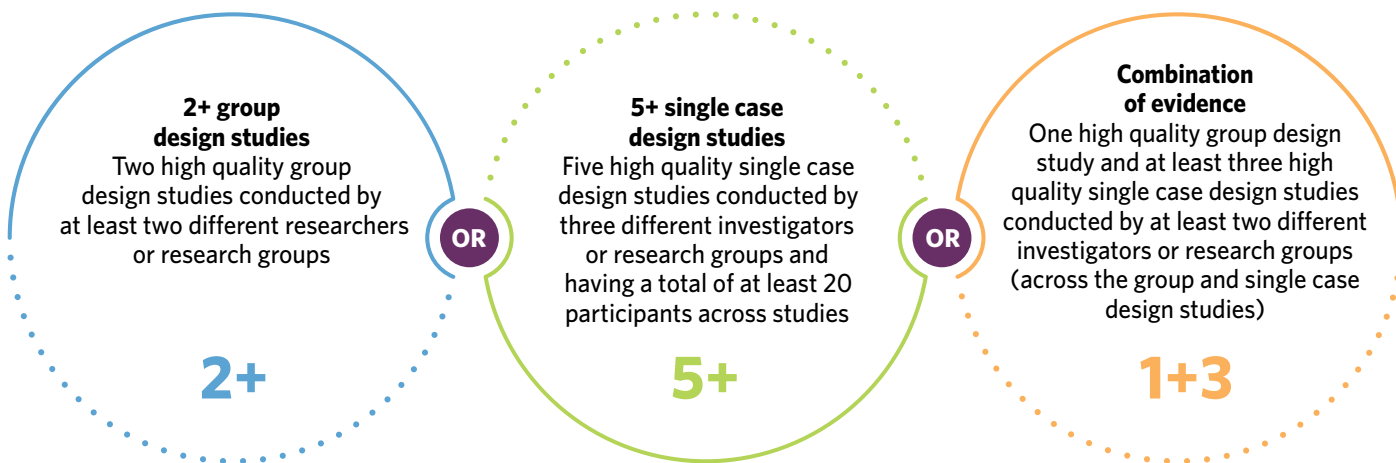
step, the reviewer could: assign an article to one or more of the 27 practice categories identified in the previous review (Wong et al., 2014); assign the article to a practice category that had been identified as having some evidence in the previous review; and/or identify a new possible category of practices represented in the article.

Once the NCAEP team had sorted articles within practices, the second step was for different team members to review each article assigned to a given category in the previous step to confirm that it fit within the category. At times, authors published a single study in multiple research articles, such as when they report effects on different dependent variables, follow-up to the original study, or secondary analysis (e.g., a separate analysis of moderators or implementation). These were “counted” as one study when making decisions about level of evidence necessary for classification as an EBP. During this step of data extraction, team members also identified manualized interventions that fit within a conceptual category. Manualized interventions shared procedural features that were similar to other interventions in the category but had unique features that distinguished them as a salient model and had an identifiable title. For example, Social Stories™ is a trademarked intervention by Carol Gray (1993), that fits within the Social Narratives category but is also distinct as a particular type of Social Narrative. Also, during the data extraction phase of the review, our team identified additional articles that were removed for not meeting eligibility requirements and/or quality standards, which may have been missed in the original quality review. These decisions were confirmed by a second team member. Following the final steps of data extraction, we compiled the data for analysis and synthesis.

Identification of EBPs

When all articles were assembled into categories, the team made a final determination about whether a practice met the level of evidence necessary to be classified as an EBP using criteria for evidence established by the previous NPDC team. The NPDC’s criteria were originally drawn from the work of Nathan and Gorman (2007), Rogers and Vismara (2008), Horner and colleagues (2005), and Gersten and colleagues (2005), as well as the earlier work by the APA Division 12 (Chambless & Hollon, 1998). Its rationale is based on the necessity of having a sufficient number of empirical demonstrations of efficacy through high quality, peer-reviewed journal articles **and** replications of those demonstrations by independent research groups.

Figure 2.2 Criteria for qualification as an evidence-based practice



Different criteria were established for group and single case design evidence (see Figure 2.2). To be identified as evidence-based, a category of practice had to contain (a) two high quality group design studies conducted by two different research groups, or (b) five high quality single case design studies conducted by three different research groups and involving a total of 20 participants across studies, or (c) a combination of one high quality group design study and three high quality single case design studies with the combination being conducted by two independent research groups.

The emphasis on independent replication in this systematic review is aligned with the core features of the scientific method (Fiddler, & Wilcox, 2018), and in most cases the concept of Sidman's (1960) definition of systematic replication. Independence of research groups was defined as the research being located in different settings and the key constituent members of the authorship of published articles being different from other research groups.

Conclusion

In this chapter, we described the procedures followed in conducting this systematic review. The methods drew from standard and accepted systematic review processes and accepted methodological standards in the field for individual studies. The NCAEP team used a multiphase approach moved from searching the literature, to screening for inclusion, to evaluating the study methodology, and finally to deriving the categories of practice and determining the practices that had sufficient scientific support to be classified as evidence-based. We report the results of this process in the next chapter.

CHAPTER 3

RESULTS

In this report, we conducted a systematic review of intervention research studies published between 1990 and 2017. The review combines a previous search and analysis of the literature from 1990-2011, as reported in Wong et al. (2014), and an updated review of articles published between 2012 and 2017. We will present the results of the updated search, and then identify the EBPs for the current review. We will also provide information about the study designs, participant characteristics, associated outcomes and implementation characteristics of the interventions.

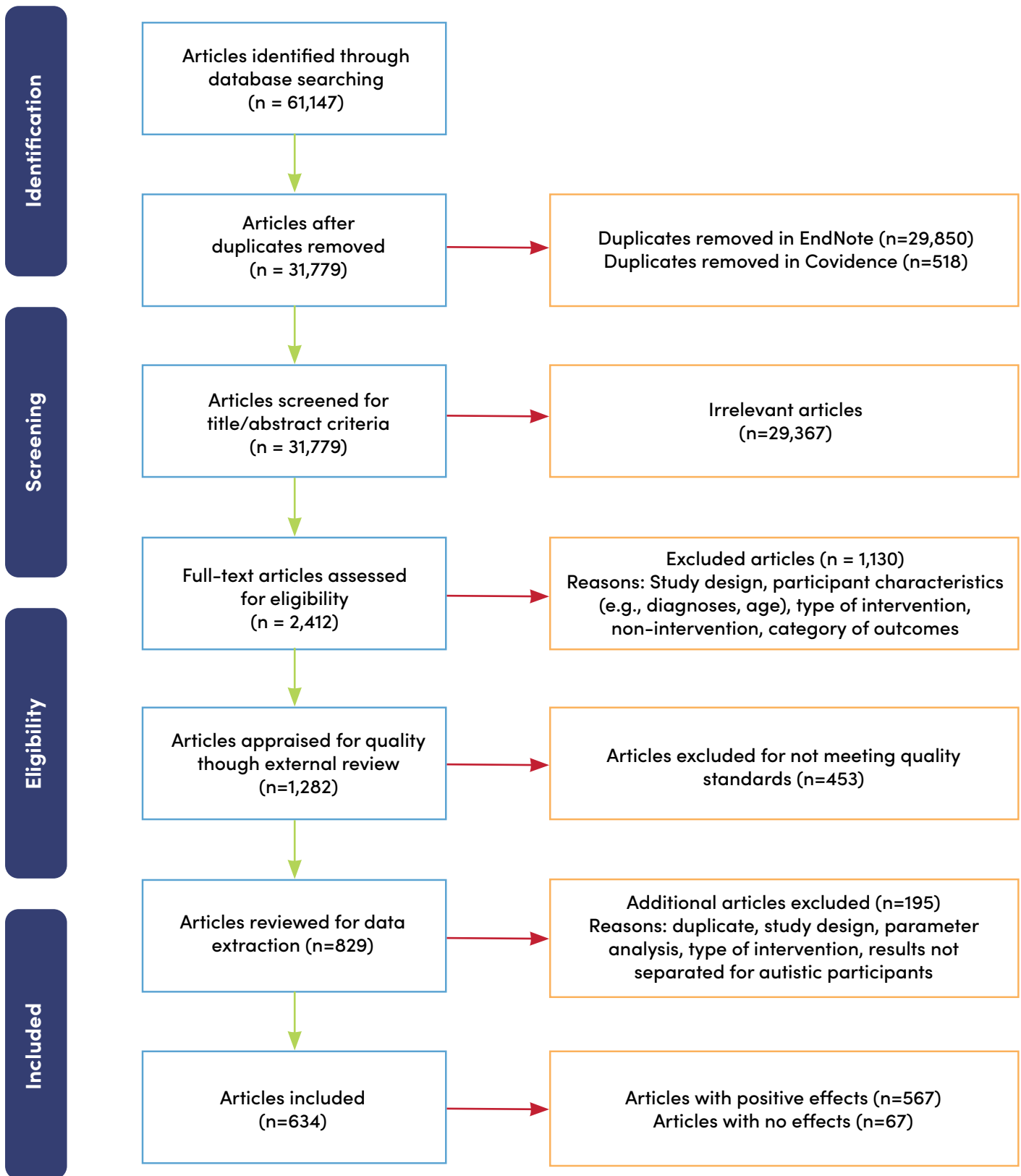
Previous Review Period (1990-2011)

The previous review identified 29,105 articles in an initial search of the literature, and through a screening process described by Wong et al. (2014) included 427 articles that met methodological criteria for inclusion. *(Note: This number differs from the number of articles reported in the previous report because several of the articles in the previous review were excluded based on our re-review for this report.)*

Updated Search Results (2012-2017)

The search update incorporated results from the nine databases identified in the previous chapter, which generated an initial total of 61,147 articles (see Figure 3.1) and 31,779 after duplicates were removed. After reviewers screened articles by title/abstract and then full-text, 1,282 articles remained for quality appraisal. During quality appraisal, an additional 453 articles were eliminated, resulting in the inclusion of 829 articles. The NCAEP team discovered 11 duplicate articles during data extraction, and excluded 184 additional articles for not meeting inclusion criteria and/or quality standards. Common reasons for exclusion in this phase included (a) component analyses that studied variations of delivery of an intervention rather than providing evidence for an intervention's efficacy, (b) single case design studies with sufficient experimental control but only a subset of participants having autism (e.g., 3 demonstrations of effects, but only 2 of 3 participants had autism), and (c) alternating treatment design studies with no difference between the two interventions. This left 634 articles that met our established criteria for evidence. Of the remaining 634 articles, 567 of the articles showed positive effects for at least one outcome of interest for the current review.

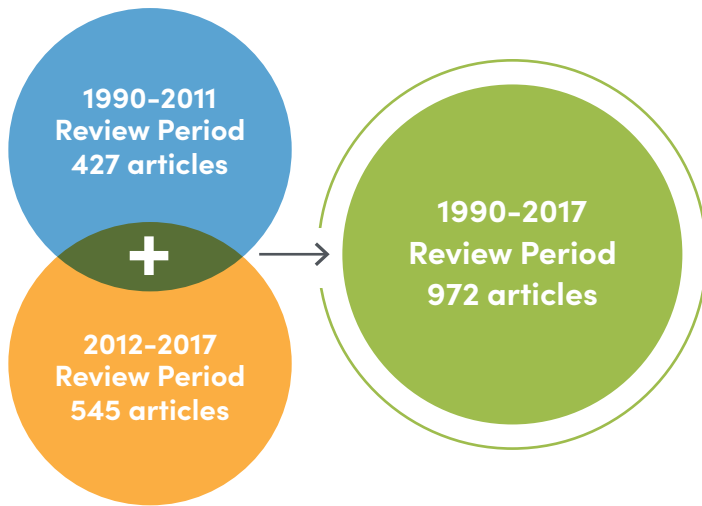
Figure 3.1. PRISMA flow diagram for 2012-2017 review period



Identification of Evidence-Based Practices

The NCAEP team reviewed the remaining 567 articles with positive effects and determined that 545 of the articles were primary studies (i.e., not secondary data analysis or follow-up analysis of a primary study in the review). These 545 studies were combined with the 427 studies from the previous review, yielding a total of 972 acceptable articles (see Figure 3.2). The classification of articles, as described in Chapter 2, resulted in 28 EBPs.

Figure 3.2. Number of articles included in each review period



The 28 EBPs, their abbreviated definitions, and the number of articles from each review period that contributed to the evidence base are included in Table 3.1. Additionally, Appendix 3 contains a fact sheet for each of the EBPs with a longer description, information about participant ages and positive outcomes, and a full reference list.

Table 3.1 Evidence-based practices, definitions, and number of articles across review periods

Evidence-Based Practice	Definition	Empirical Support		
		1990-2011 (n)	2012-2017 (n)	1990-2017 (n)
Antecedent-Based Interventions (ABI)	Arrangement of events or circumstances that precede an activity or demand in order to increase the occurrence of a behavior or lead to the reduction of the challenging/interfering behaviors.	29	20	49
Augmentative and Alternative Communication (AAC)	Interventions using and/or teaching the use of a system of communication that is not verbal/vocal which can be aided (e.g., device, communication book) or unaided (e.g., sign language)	9	35	44
Behavioral Momentum Intervention (BMI)	The organization of behavior expectations in a sequence in which low probability, or more difficult, responses are embedded in a series of high probability, or less effortful, responses to increase persistence and the occurrence of the low probability responses.	8	4	12
Cognitive Behavioral/Instructional Strategies (CBIS)	Instruction on management or control of cognitive processes that lead to changes in behavioral, social, or academic behavior.	7	43	50
Differential Reinforcement of Alternative, Incompatible, or Other Behavior (DR)	A systematic process that increases desirable behavior or the absence of an undesirable behavior by providing positive consequences for demonstration/non-demonstration of such behavior. These consequences may be provided when the learner is: a) engaging in a specific desired behavior other than the undesirable behavior (DRA), b) engaging in a behavior that is physically impossible to do while exhibiting the undesirable behavior (DRI), or c) not engaging in the undesirable behavior (DRO).	27	31	58
Direct Instruction (DI)	A systematic approach to teaching using a sequenced instructional package with scripted protocols or lessons. It emphasizes teacher and student dialogue through choral and independent student responses and employs systematic and explicit error corrections to promote mastery and generalization.	2	6	8
Discrete Trial Training (DTT)	Instructional approach with massed or repeated trials with each trial consisting of the teacher's instruction/presentation, the child's response, a carefully planned consequence, and a pause prior to presenting the next instruction.	16	22	38
Exercise and Movement (EXM)	Interventions that use physical exertion, specific motor skills/ techniques, or mindful movement to target a variety of skills and behaviors.	6	11	17
Extinction (EXT)	The removal of reinforcing consequences of a challenging behavior in order to reduce the future occurrence of that behavior.	13	12	25
Functional Behavioral Assessment (FBA)	A systematic way of determining the underlying function or purpose of a behavior so that an effective intervention plan can be developed.	11	10	21
Functional Communication Training (FCT)	A set of practices that replace a challenging behavior that has a communication function with more appropriate and effective communication behaviors or skills.	12	19	31
Modeling (MD)	Demonstration of a desired target behavior that results in use of the behavior by the learner and that leads to the acquisition of the target behavior.	10	18	28
Music-Mediated Intervention (MMI)	Intervention that incorporates songs, melodic intonation, and/or rhythm to support learning or performance of skills/behaviors. It includes music therapy, as well as other interventions that incorporate music to address target skills.	3	4	7
Naturalistic Intervention (NI)	A collection of techniques and strategies that are embedded in typical activities and/or routines in which the learner participates to naturally promote, support, and encourage target skills/behaviors.	26	49	75

continued on next page

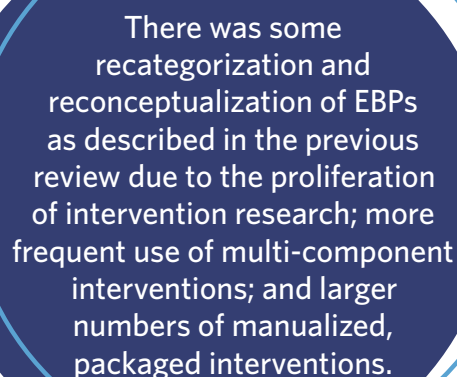
Table 3.1 Evidence-based practices, definitions, and number of articles across review periods

Evidence-Based Practice	Definition	Empirical Support		
		1990-2011 (n)	2012-2017 (n)	1990-2017 (n)
Parent-Implemented Intervention (PII)	Parent delivery of an intervention to their child that promotes their social communication or other skills or decreases their challenging behavior.	13	42	55
Peer-Based Instruction and Intervention (PBII)	Intervention in which peers directly promote autistic children’s social interactions and/or other individual learning goals, or the teacher/ other adult organizes the social context (e.g. play groups, social network groups, recess) and when necessary provides support (e.g., prompts, reinforcement) to the autistic children and their peer to engage in social interactions.	19	25	44
Prompting (PP)	Verbal, gestural, or physical assistance given to learners to support them in acquiring or engaging in a targeted behavior or skill.	55	85	140
Reinforcement (R)	The application of a consequence following a learner’s use of a response or skills that increases the likelihood that the learner will use the response/skills in the future.	53	53	106
Response Interruption/Redirection (RIR)	The introduction of a prompt, comment, or other distractors when an interfering behavior is occurring that is designed to divert the learner’s attention away from the interfering behavior and results in its reduction.	13	16	29
Self-Management (SM)	Instruction focusing on learners discriminating between appropriate and inappropriate behaviors, accurately monitoring and recording their own behaviors, and rewarding themselves for behaving appropriately.	14	12	26
Sensory Integration® (SI)	Interventions that target a person’s ability to integrate sensory information (visual, auditory, tactile, proprioceptive, and vestibular) from their body and environment in order to respond using organized and adaptive behavior.	1	2	3
Social Narratives (SN)	Interventions that describe social situations in order to highlight relevant features of a target behavior or skill and offer examples of appropriate responding.	15	6	21
Social Skills Training (SST)	Group or individual instruction designed to teach learners ways to appropriately and successfully participate in their interactions with others.	18	56	74
Task Analysis (TA)	A process in which an activity or behavior is divided into small, manageable steps in order to assess and teach the skill. Other practices, such as reinforcement, video modeling, or time delay, are often used to facilitate acquisition of the smaller steps.	9	4	13
Technology-Aided Instruction and Intervention (TAII)	Instruction or intervention in which technology is the central feature and the technology is specifically designed or employed to support the learning or performance of a behavior or skill for the learner.	10	30	40
Time Delay (TD)	A practice used to systematically fade the use of prompts during instructional activities by using a brief delay between the initial instruction and any additional instructions or prompts.	16	15	31
Video Modeling (VM)	A video-recorded demonstration of the targeted behavior or skill shown to the learner to assist learning in or engaging in a desired behavior or skill.	35	62	97
Visual Supports (VS)	A visual display that supports the learner engaging in a desired behavior or skills independent of additional prompts.	34	31	65

It is important to note that there was some recategorization and reconceptualization of EBPs as described in the previous review. In cases of reconceptualization and recategorization, the articles from the previous review (Wong et al., 2014) were reviewed and recategorized if needed. There were several major trends that impacted the categorization of the EBPs including: the proliferation of intervention research; more frequent use of hybrid, multi-component interventions; and larger numbers of manualized, packaged interventions. With the proliferation of intervention research and the more frequent use of multi-component interventions, two decisions were made about categorization: (1) efforts were made to combine and/or expand EBP categories that shared similar features (e.g., Scripting moved into *Visual Supports*, Structured Play Groups moved into *Peer-Based Instruction and Intervention*; see Chapter 4 for discussion), (2) articles were more frequently coded into multiple intervention categories when multiple EBPs were present (n=193). In the previous review, 13 studies with multiple components had been classified as idiosyncratic behavior packages and in the current review they were reclassified into each of the individual EBPs.

Manualized Interventions Meeting Criteria for EBPs

Emerging from the current review were interventions that clearly fit the EBP categorical definitions but had themselves enough evidence to be classified as an EBP. We have identified these practices as Manualized Interventions Meeting Criteria (MIMCs) and grouped them within established EBP categories. The rationale for this classification was to provide conceptual clarity of the EBP organization but also to highlight the particular approach. In addition to having sufficient evidence, MIMCs had to have clearly established manualized procedures or software. In total, there were 10 MIMCs classified within six of the EBP categories (see Chapter 4 for full list and additional discussion). As part of the reclassification process and to be conceptually consistent, two of the previous EBPs were reclassified as MIMCs and included under other EBP categories (i.e., Pivotal Response Training is now classified within *Naturalistic Intervention* and Picture Exchange Communication Systems® is now classified within *Augmentative and Alternative Communication*).



There was some recategorization and reconceptualization of EBPs as described in the previous review due to the proliferation of intervention research; more frequent use of multi-component interventions; and larger numbers of manualized, packaged interventions.

Practices with Some Evidence

There are 11 practices that have at least some evidence but have not met criteria for an evidence-based practice (e.g., too few studies or participants, only one research group), including five new interventions and six interventions maintained from the previous review. Table 3.2 includes a list of these 11 practices with a short definition and the articles supporting the intervention. With the increase in multi-component interventions, some of the interventions include studies that were also categorized within EBPs.

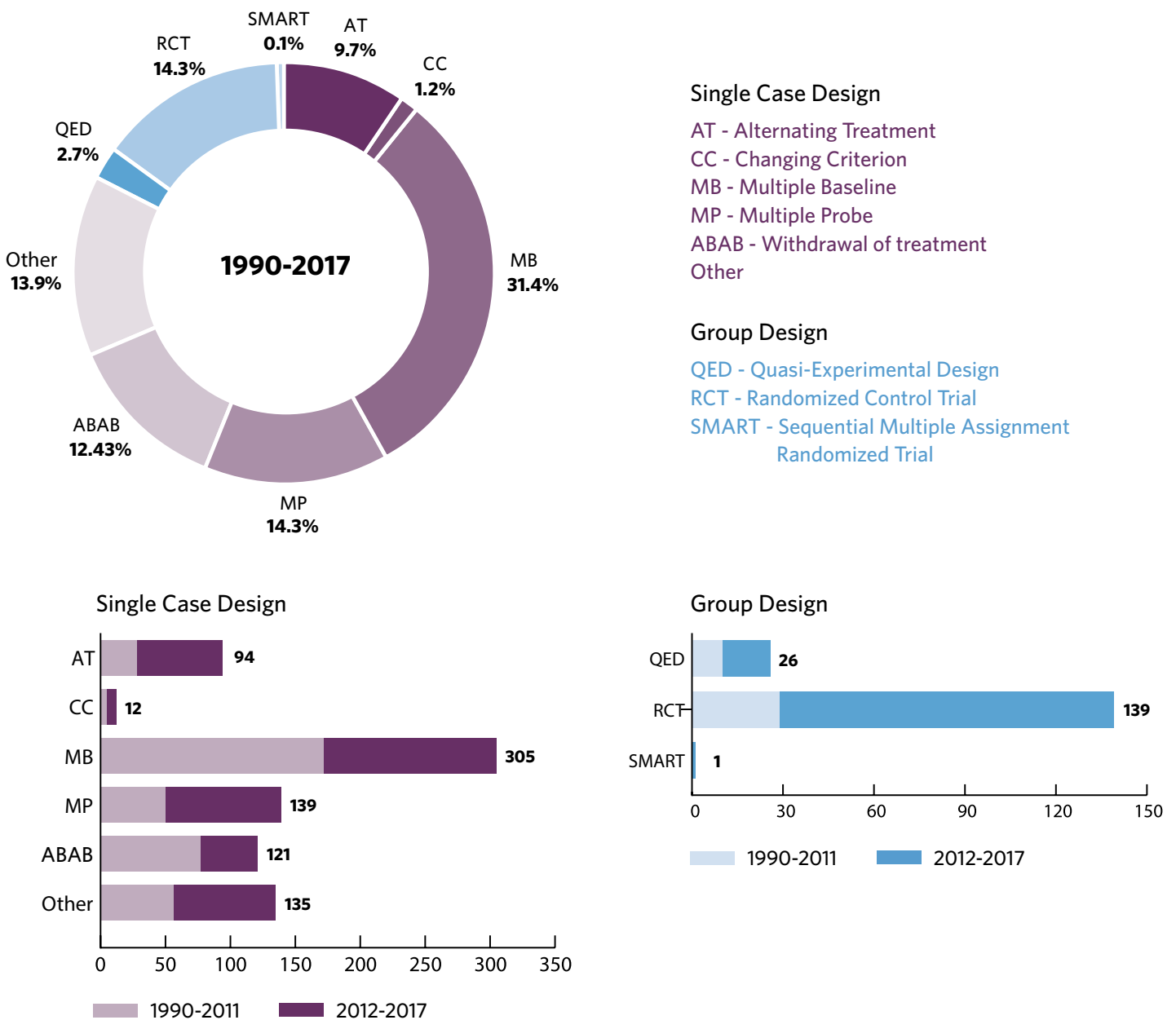
Table 3.2 Focused intervention practices with some evidence

Current Review: 1990-2017	Description	Evidence	Exclusion
Animal Assisted Intervention	Interventions that incorporate the use of a dog to improve performance of targeted behaviors or skills	Becker et al. (2017)	Insufficient evidence
Auditory Integration Training	Systematic exposure to modulated tones resulting in changes in parent reported problem behavior	Edelson et al. (1999)	Insufficient evidence <i>*No new evidence</i>
Collaborative Model for Promoting Competence and Success (COMPASS) <i>*Previously called Collaborative Coaching</i>	Systematic consultation between parent and teacher and ongoing coaching across the school year to help the team promote achievement of IEP goals utilizing evidence-based practices	Ruble et al. (2010) Ruble et al. (2013)	Only one research group <i>*Some new evidence</i>
Exposure	Increasing (for accelerating behaviors) or decreasing (for decelerating behaviors) the stimulus intensity or conditions to promote the occurrence of the desired response	Bishop et al. (2013) Ellis et al. (2006) Hodges et al. (2017) Seiverling et al. (2012)	Insufficient evidence <i>*Some new evidence</i>
Massage <i>*Previously called Touch Therapy</i>	Systematic massage using moderate pressure on the head/neck, arms/hands, torso, and the legs/feet.	Field et al. (1997)	Insufficient evidence <i>*No new evidence</i>
Matrix Training	Teaching approach that facilitates generalization of taught information to related but untaught information through the arrangement of components of desired skills (e.g., words) along the horizontal and vertical axes of a rectangle, then systematically teaching combinations of components across the resulting matrix	Frampton et al. (2016) MacManus et al. (2015)	Insufficient evidence
Outdoor Adventure	Group camp-style activities that incorporate songs, rope courses, and debriefs focusing on teamwork, trust, communication, facing fears, and self-determination	Zachor et al. (2017)	Insufficient evidence
Perceptual Motor	A series of tasks that target body awareness, motor planning, bilateral motor integration, balance skills, fine motor coordination, functional vision skills, and oral motor skills	Afshari (2012)	Insufficient evidence
Person-Centered Planning	Team-based process for selecting and organizing the services and supports that an individual may need to live in the community directed by the learner	Hagner et al. (2012)	Insufficient evidence
Punishment <i>*See discussion section for commentary on this practice</i>	Consequence that is applied to a behavior that has the effect of reducing the future occurrence of that behavior (e.g. verbal reprimand, response cost)	DeRosa et al. (2016) Dominguez et al. (2014) Dupuis et al. (2015) Pelios et al. (2003)	Insufficient evidence <i>*Some new evidence</i>
Sensory Diet	Sensory based activities integrated into child routines to meet sensory needs	Fazlıođlu & Baran (2008)	Insufficient evidence <i>*No new evidence</i>
Systematic Transition in Education Programme for Autism Spectrum Disorder (STEP-ASD)	Intervention that supports parents, students, and school teams in individualized planning for and executing the transition from primary to secondary school and addressing related behavioral and emotional issues.	Mandy et al. (2016)	Insufficient evidence

Study Characteristics

Study designs were divided into two categories: group studies and single case design studies, each with several sub-categories of designs. Across the studies for both review periods, single case design studies made up 83% of the articles and group design made up 17% (see Figure 3.3). The percentage of group studies was higher for the recent review period, comprised of 23% of the articles compared to only 9% of the articles in the previous review period. In examining the sub-categories, there were notable increases in the use of alternating treatment designs, multiple probe designs, and randomized control trials from the previous review to current review, as well as the addition of one sub-category of group design, the sequential multiple assignment randomized trials (SMART) design. Although regression discontinuity designs could have been considered acceptable, there were no studies using this design in the current review.

Figure 3.3 Types of study designs



Participant Characteristics

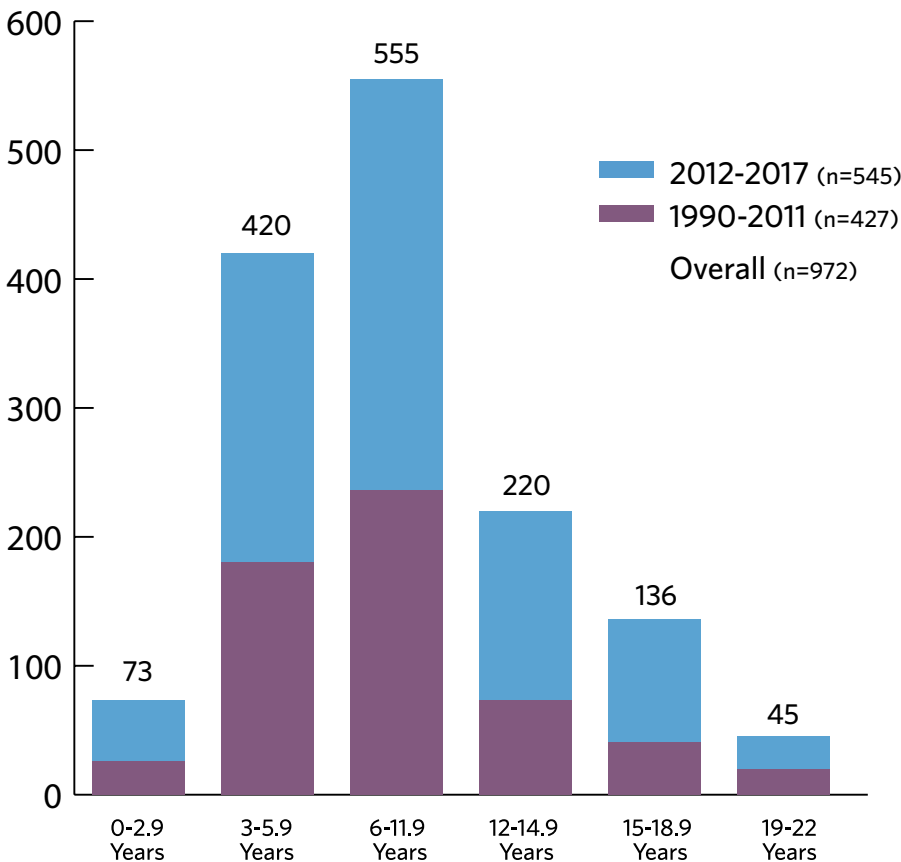
The information on diagnoses and co-occurring conditions is shown in Table 3.3. It is important to note that a given study could include multiple diagnostic or co-occurring conditions categories. Autism was the most frequently reported diagnosis in studies, with 64% of studies indicating at least one participant with autism. There was, however, a drop of about 35% from the 1990-2011 period (83%) to the 2012-2017 period (48%). There was a large increase in reporting of ASD as a diagnosis, moving from 12% (1990-2011) to 55% (2012-2017) with an average of 36% across all studies. The reports of participants with Asperger or High Functioning Autism (HFA) and PDD or PDD-NOS were relatively low (10% and 14%) and stayed relatively stable across review periods. Over 55% of the studies failed to report any information on co-occurring conditions. However, when reported, the most frequent co-occurring condition was intellectual disability, with about one-fifth of all studies noting it in their participants. All other co-occurring conditions were reported in 5% or fewer of the studies.

Table 3.3 Diagnosis and co-occurring conditions of participants across review periods

Diagnosis	1990-2011 (n=427)		2012-2017 (n=545)		1990-2017 (n=972)	
	n	%	n	%	n	%
ASD	52	12.1%	298	54.6%	350	36.0%
Asperger/HFA	37	8.6%	60	11.0%	97	10.0%
Autism	357	83.6%	263	48.2%	620	63.8%
PDD/PDD-NOS	62	14.5%	76	13.9%	138	14.2%
Co-occurring Condition(s)						
ADD/ADHD	11	2.5%	39	7.1%	50	5.1%
Deaf/Hearing impairment			2	0.3%	2	0.2%
Developmental delay	5	1.1%			5	0.5%
Epilepsy seizure disorder	13	3.0%	16	2.9%	29	3.0%
Genetic syndrome	1	0.2%	13	2.3%	14	1.4%
Intellectual disability	109	25.5%	93	17.0%	202	20.8%
Learning disability	4	0.9%	6	1.1%	10	1.0%
Mental health condition	3	0.7%	29	5.3%	32	3.3%
Physical disability	7	1.6%	4	0.7%	11	1.1%
Sensory	11	2.5%			11	1.1%
Speech/Language	19	4.4%			19	2.0%
Visual impairment			1	0.1%	1	0.1%
Other	29	6.7%	69	12.6%	98	10.1%
No co-occurring conditions	38	8.9%	39	7.1%	77	7.9%
Not reported	231	54.1%	319	58.5%	550	56.6%

Participants' ages were classified into six categories and multiple age categories could be selected for each study. The number of studies that reflect each age category are shown in the bar graph separated by review period and totaled across review periods in Figure 3.4. When comparing the 1990-2011 and 2012-2017 review periods, most studies were conducted with 3-5-year-olds (i.e., 42% and 43% respectively) and 6-11 year-olds (55% and 57% respectively). However, in the more recent review period, there were substantial increases in the percentages of studies conducted with 12-14-year olds (i.e., 17% and 27% respectively) and 15-18-year olds (i.e., 10% and 17% respectively). The youngest age category (birth-35 months) had a slight increase from 6% to 9%. The oldest age category (19-22 years) remained stable across review periods at 5%.

Figure 3.4 Age of participants across review periods



In the previous review, data on gender and sex were not extracted so these data only reflect the 2012-2017 review period. Data on the gender or sex of the participants were reported in 93% of studies (see Figure 3.5). Table 3.4 shows data on the number of articles and participants for males and females. Of note, although non-binary and other were included as options during the data extraction, no included studies reported these categories. In studies that reported the number of participants in the gender or sex categories, 84% of participants were male.

Figure 3.5 Percentage of studies reporting race/ethnicity/nationality and gender/sex data in 2012-2017 review period

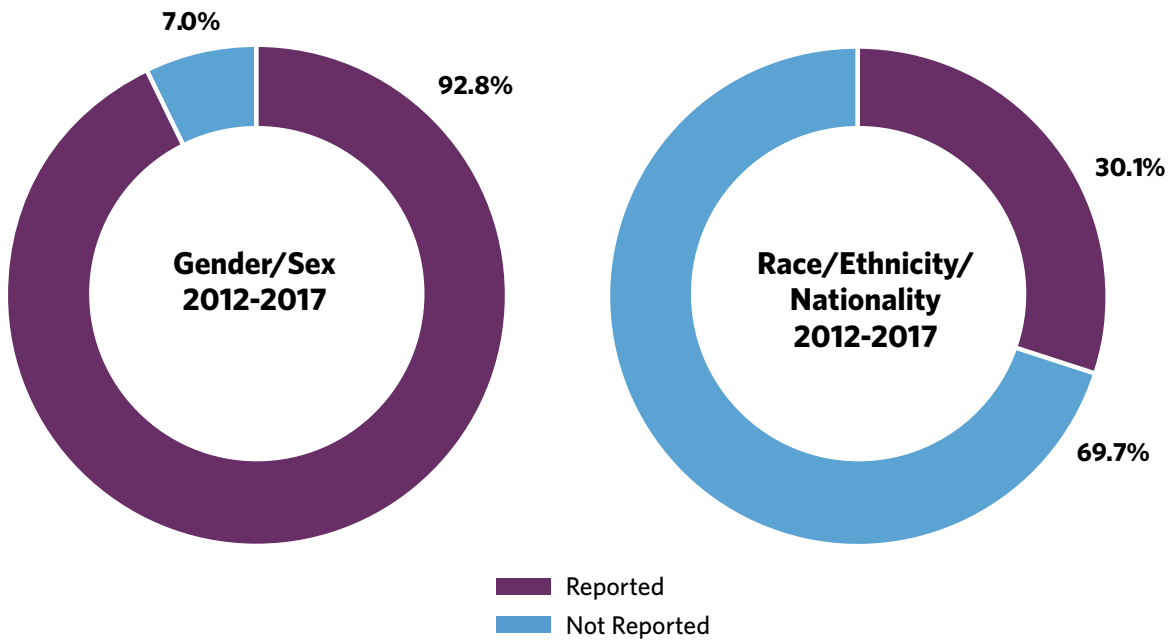


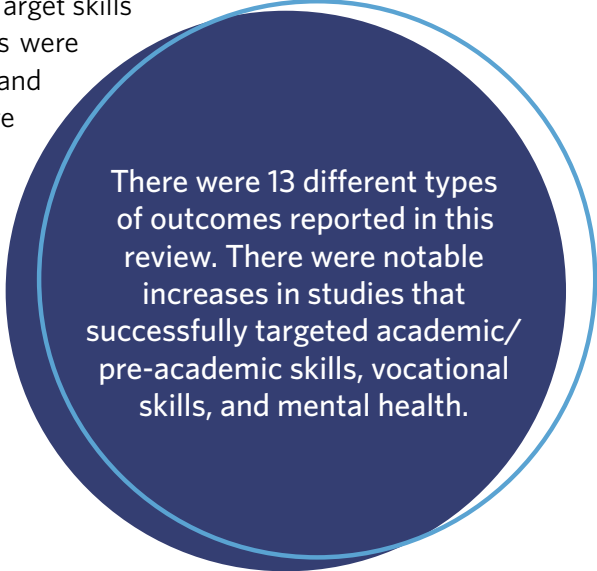
Table 3.4 Race/ethnicity/nationality and gender/sex of participants in 2012-2017 review period

Gender/Sex	2012-2017	
	Articles (n=545)	Participants
Male	485	5934
Female	259	1097
Not reported	38	
Total		7031
Race/Ethnicity/Nationality		
African American/Black	74	343
Asian	52	314
Hispanic/Latino	52	281
Middle Eastern	9	45
Native American	1	1
Native Hawaiian/Pacific Islander	3	3
White	130	2101
Two or more/Multi-racial	24	119
Other	29	257
Not specified	7	88
Not reported	381	
Total		3552

Data on race/ethnicity/nationality were also not extracted in the 1990-2011 studies, so these data reflect the 2012-2017 review period. These data were reported in 30% of all studies (see Figure 3.5). Of the articles reporting information nearly 80% reported having at least one White participant, 45% reported having at least one Black participant, and 32% and 31% reported having at least one Hispanic/Latino participant and Asian participant respectively. All other groups had representation in participants for less than 20% of the studies reporting race/ethnicity/nationality data. For studies that reported numbers of participants by categories, 59% of the participants were White, 10% were Black, 9% were Asian, and 8% were Hispanic/Latino. All other groups had less than 5% representation among participants in studies reporting this information.

Outcomes

There were 13 different types of outcomes reported in this review. Target skills relating to communication, social skills, and challenging behaviors were the most frequently reported outcomes, represented in 34%, 31%, and 27% of studies respectively (see Table 3.5). A smaller percentage of studies showed improved academic/pre-academic skills (15%), play (13%), school readiness (11%), and adaptive/self-help skills (11%). All other skills were noted in 6% or less of the studies. When examining differences between the two review periods, there were notable increases in studies that successfully targeted academic/pre-academic skills (from 55 studies in 1990-2011 to 96 studies in 2012-2017), vocational skills (from 11 studies to 20 studies), and mental health (from 1 study to 16 studies). Most other outcome categories remained relatively stable or decreased in the number of studies between the two reviews.



There were 13 different types of outcomes reported in this review. There were notable increases in studies that successfully targeted academic/pre-academic skills, vocational skills, and mental health.

Table 3.5 Outcomes identified across review periods

Domain/Instructional Outcome	Definitions	1990-2011 (n)	2012-2017 (n)	1990-2017 (n)
Academic/Pre-academic	Outcomes broadly related to performance on tasks typically taught and used in school settings	55	96	151
Adaptive/Self-help	Outcomes related to independent living skills and personal care skills	52	53	105
Challenging/Interfering behavior	Outcomes related to decreasing or eliminating behaviors that interfere with the individual's ability to learn	147	121	268
Cognitive	Outcomes related to performance on measures of intelligence, executive function, problem solving, information processing, reasoning, theory of mind, memory, creativity, or attention	15	22	37
Communication	Outcomes related to ability to express wants, needs, choices, feelings, or ideas	173	159	332
Joint attention	Outcomes related to behaviors needed for sharing interests and/or experiences	36	27	63
Mental health	Outcomes related to emotional well-being	1	16	17
Motor	Outcomes related to movement or motion, including both fine and gross motor skills, or related to sensory system/sensory functioning	17	16	33
Play	Outcomes related to the use of toys or leisure materials	73	50	123
Self-determination	Outcomes related to self-directed actions in setting and achieving goals or making decisions and problem-solving	0	2	2
School readiness	Outcomes related to task performance versus task content or curriculum area (e.g., on task behavior, engagement)	63	46	109
Social	Outcomes related to skills needed to interact with others	152	150	302
Vocational	Outcomes related to employment or employment preparation or relate to technical skills required for a specific job	11	20	31

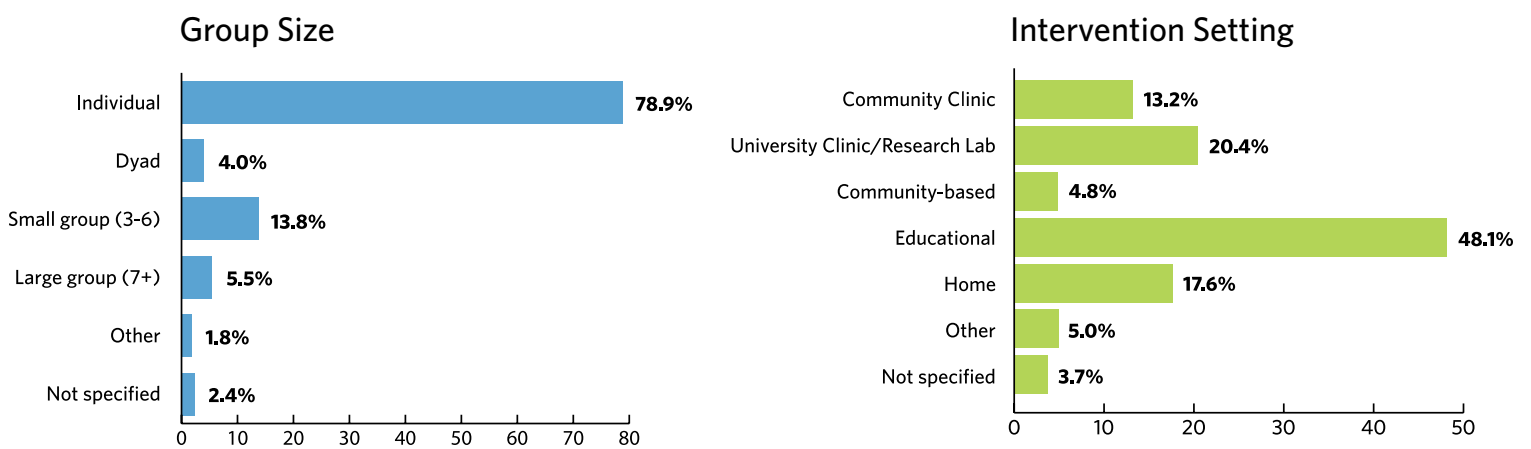
Implementation Characteristics

Data on the implementers, settings, and group sizes for the 2012-2017 review period are presented in Table 3.6 and Figure 3.6. Studies could include multiple implementers, settings, or group sizes, thus the data are not mutually exclusive. The implementers were primarily research staff, serving as interventionists in 52% of studies and coaches in 10% of studies. Educators and related service providers were each identified as implementers in 20% of studies, and parents were noted as implementers in 10% of studies. Related to settings, nearly 50% of studies noted educational settings, 20% university clinic/research lab settings, 18% home settings, and 13% community clinic settings. Almost 80% of the studies were conducted in individual sessions (i.e., one-on-one), and 14% were conducted in small group settings with 3-6 total participants. All other group sizes occurred in less than 6% of the studies.

Table 3.6 Implementers of evidence-based practices in 2012-2017 review period

Implementer Categories	Studies (n)	% of studies
BCBA	15	2.8%
Educator	109	20.0%
Special Education Teacher	57	10.5%
Teacher (not specified)	30	5.5%
Paraeducator	16	2.9%
General Education Teacher	5	0.9%
Early Interventionist	1	0.2%
Parent	50	9.2%
Peer	14	2.6%
Peer (non-family)	13	2.4%
Sibling	1	0.2%
Related Service Provider	111	20.4%
Therapist (not specified)	69	12.7%
Psychologist	20	3.7%
Speech Language Pathologist	12	2.2%
Occupational Therapist	5	0.9%
Physical Therapist	2	0.4%
Psychiatrist	2	0.4%
Counselor	1	0.2%
Researcher	339	62.2%
Researcher as interventionist	284	52.1%
Researcher as coach	55	10.1%
Other	51	9.4%
Not specified	15	2.8%

Figure 3.6 Percentage of studies by group size and intervention setting in 2012-2017 review period



EBPs, Outcomes, and Ages

The matrix in Table 3.7 displays the outcomes identified for each EBP, also sorted by age group within the EBP. The filled cells indicate that at least one study generated the indicated outcome (from the column) for a specific intervention (from the row). Most of the EBPs have at least some evidence of impact across a wide range of ages (three or more age groups). In general, EBPs tend to address a wide variety of outcome categories, ranging from four to 11 outcomes. Notably, 23 EBPs have been shown to impact seven or more outcome categories and 16 EBPs have been shown to impact nine or more. Finally, most outcome categories are positively impacted by a range of EBPs. Three EBPs have proven to impact self-determination, seven impact mental health, and nine impact vocational skills. Cognitive skills, joint attention, and motor skills are linked to 13, 16, and 16 EBPs respectively, and all other outcome categories (academic, adaptive, behavior, communication, play, school readiness, and social) have been successfully improved using 23 or more of the 28 EBPs.

Summary

The results present data from the search process and include data from the articles used to identify EBPs. In addition, the study design, participant characteristics, outcomes, and implementation characteristics of the articles are provided. They provide insights about the state of research related to behavioral, clinical, developmental, and educational intervention to support autistic individuals which will be highlighted in the discussion chapter.

CHAPTER 4

DISCUSSION

The current report updates and extends the work on evidence-based, focused intervention practices begun with an initial review published in 2010 (Odom, Collet-Klingenberg, et al., 2010) and extended through a second report published in 2014 (Wong et al., 2014). In this chapter, we discuss the 28 EBPs identified in the current report, describe the differences between the previous report and the current report, and suggest trends across time. As with any review, it is important to identify limitations, which we acknowledge. We also propose implications of the results of this review for practice and future research.

Evidence-Based Practices

In the current review, 28 practices met the criteria for classification of evidence-based. These practices and their definitions were reported in the previous chapter (Table 3.1). As the intervention literature has provided more empirical information and as practices have evolved, some of the classifications required reconceptualization and revision of previous definitions. In an active research area, knowledge does not stand still, and in fact identification of EBPs should be dynamic, reflecting the growth of knowledge across time, as well as changes in society.

Identified EBPs from the previous review period (1990-2011) and the current, full review (1990-2017) appear in Table 4.1. There are five new EBP categories in this review. Four of the new EBPs were previously identified as “interventions with some evidence,” and now meet the evidence-based criteria based on additional articles in the 2012-2017 review period: *Behavior Momentum Intervention*, *Direct Instruction*, *Music-Mediated Intervention*, and *Sensory Integration*[®]. It is important to note that Sensory Integration[®] refers explicitly to the model developed by Jean Ayers (2005) and not to a variety of unsupported interventions that address sensory issues (Barton et al., 2015; Case-Smith et al., 2015; Watling & Hauer, 2015). The fifth new EBP is *Augmentative and Alternative Communication*, which includes practices previously in other categories. The new classification provides a more cohesive grouping of practices with common procedural features.

With this review, four focused intervention practices previously identified as EBPs have been merged into other categories. Scripting is now within *Visual Supports*. Structured Play Groups is included in *Peer-Based Instruction and Intervention*, a reconceptualized category that now includes adult-mediated interventions with peers in addition to peer-mediated interventions. While Pivotal Response Training (PRT; Koegel & Koegel, 2006; Stahmer et al., 2011) has quite an expansive literature base, it is often described as a *Naturalistic Intervention*, and to provide more conceptual consistency it has been merged into the latter grouping. Similarly, Picture Exchange Communication System[®] (PECS[™]; Bondy & Frost, 2011), with its own expansive literature base, now fits conceptually within the *Augmentative and Alternative Communication* EBP. Importantly, these reclassifications do not indicate that these practices are any less effective or evidence-based. Rather, the reclassifications are designed to provide more conceptual clarity, consistency, and conciseness.

Table 4.1 Comparison of evidence-based practices across review periods

Evidence-Based Practices from 1990-2017	Evidence-Based Practices from 1990-2011	Reason for Change	Manualized Interventions Meeting Criteria (MIMCs)
Antecedent-Based Intervention	Antecedent-Based Interventions		
Augmentative and Alternative Communication		Distinguished from Technology-Aided Instruction and Intervention as a separate practice	PECS®
Behavioral Momentum Intervention			
Cognitive Behavioral/ Instructional Strategies	Cognitive Behavior Intervention	Expanded category to include academic-focused cognitive interventions	
Differential Reinforcement of Alternative, Incompatible or Other Behaviors	Differential Reinforcement of Alternative, Incompatible or Other Behaviors		
Direct Instruction			
Discrete Trial Training	Discrete Trial Training		
Exercise and Movement	Exercise	Expanded category to include mind-body interventions (e.g., yoga)	
Extinction	Extinction		
Functional Behavioral Assessment	Functional Behavioral Assessment		
Functional Communication Training	Functional Communication Training		
Modeling	Modeling		
Music-Mediated Intervention			
Naturalistic Intervention	Naturalistic Intervention		JASPER Milieu Teaching PRT
Parent-Implemented Intervention	Parent-Implemented Interventions		Project ImPACT Stepping Stones Triple P
	PECS®	Moved to <i>Augmentative and Alternative Communication</i> as MIMC	
Peer-Based Instruction and Intervention	Peer-Mediated Instruction/ Intervention	Expanded category to include adult-mediated interventions with peers	
	Pivotal Response Training	Moved to <i>Naturalistic Intervention</i> as MIMC	
Prompting	Prompting		
Reinforcement	Reinforcement		
Response Interruption/ Redirection	Response Interruption/Redirection		
	Scripting	Moved to <i>Visual Supports</i>	
Self-Management	Self-Management		
Sensory Integration®			
Social Narratives	Social Narratives		Social Stories™
Social Skills Training	Social Skills Training		PEERS®
	Structured Play Groups	Moved to <i>Peer-Based Instruction and Intervention</i>	
Task Analysis	Task Analysis		
Technology-Aided Instruction and Intervention	Technology-Aided Instruction and Intervention	NOTE: Speech-Generating Devices were moved to <i>Augmentative and Alternative Communication</i>	FaceSay® Mindreading
Time Delay	Time Delay		
Video Modeling	Video Modeling		
Visual Supports	Visual Supports		

Manualized Interventions Meeting Criteria

A set of interventions grouped within established EBP categories now themselves have sufficient evidence to be classified as evidence-based. We have labeled these as Manualized Interventions Meeting Criteria (MIMC) and they are operationally defined as interventions that a) are manualized, b) have unique features that create an intervention identity, and c) share common features with other practices grouped within the superordinate EBP classification. Two of the most prominent, which were noted in Chapter 3, are PECS® (Frost & Bondy, 2002), merged into *Augmentative and Alternative Communication* and PRT merged into *Naturalistic Intervention*. Other MIMCs under *Naturalistic Intervention* are JASPER (Kasari et al., 2014), and Milieu Training (Kaiser & Roberts, 2013). Two MIMCs grouped within *Parent-Mediated Intervention* are Project IMPACT (Ingersoll & Dvortcsak, 2019) and Stepping Stones/Triple P (Turner et al., 2010). Social Stories™ (Gray, 2000) is grouped within the broader *Social Narrative* EBP, and the PEERS® intervention (Laugeson & Frankel, 2010) is in the *Social Skills Training* EBP. Two programs that do not necessarily have a “manual” but rather have software documentation and sufficient evidence are Mindreading (Golan & Baron-Cohen, 2006) and FaceSay® (Hopkins et al., 2011). They are grouped within the *Technology-Aided Instruction and Intervention* EBP.

Practices with Some Evidence

In addition to interventions that meet EBP criteria, there were 12 focused intervention practices, that did not yet have sufficient evidence to meet criteria for an EBP. These are listed in the previous chapter in Table 3.2. The primary reason for not meeting criteria was that there were an insufficient number of high-quality studies providing support. Eight of the 12 practices only had one supportive study. Other practices, however, had more empirical support and could be viewed as emerging practices. Two of the practices (i.e., Exposure, Matrix Training) had multiple single case design studies but fell short of the five study criteria. The COMPASS intervention had two group design studies, but the studies were conducted by a single research group, and thus had no independent replications. It is important to note that Punishment is a special case. It does have four supportive single case design studies, but its use falls under the ethical guidelines of state regulatory agencies and professional codes of ethics. Although it may technically be classified as an emerging practice, its appropriateness is sometimes questioned, and its use should be limited or at least carefully monitored. Additionally, there were several focused interventions with some evidence from the previous review period (1990-2011) that were recategorized into EBP categories as part of this review (see Table 4.2). Last, there are some practices (i.e., auditory integration, sensory diet) that were supported by only one study, had no new studies published since the last review, and for which articles have been published that document their lack of effectiveness (i.e., American Academy of Pediatrics, 2010; Barton et al., 2015). Practitioners should not interpret their inclusion in this review as an endorsement of their evidence base.

Table 4.2 Recategorization of practices with some evidence from the 1990-2011 review period

1990-2011 Review Period	Categorization for 1990-2017 Review Period	Description
Aided Language Modeling	Augmentative and Alternative Communication	Use of several augmentative and alternative communication strategies (e.g., pointing with finger, sequential pointing, use of communication symbol and vocalization together)
Cooperative Learning Groups	Peer-Based Instruction and Intervention	Academic learning tasks organized around joint activities and goals
Handwriting Without Tears	Modeling, Prompting, and Visual Supports	Multisensory activities promoting fine motor and writing skills
Independent Work Systems	Visual Supports	Organized sets of visual information that inform a learner about participation in an activity; includes clear specification of task(s), signals when task is finished, and a cue for the next activity
Music Intensity	Antecedent-Based Interventions	Different levels of music volume used to affect vocal stereotypy
Reciprocal Imitation Training	Naturalistic Intervention	Therapist or teacher repeats the actions, vocalizations, or other behaviors of the learner to promote learner's imitation and other goals
Schema-Based Strategy Instruction	Cognitive Behavioral/ Instructional Strategies	Cognitive strategy for establishing mental representations to promote addition and subtraction
Self-Regulated Strategy Development Writing Intervention	Cognitive Behavioral/ Instructional Strategies	Instructional package involving explanation of strategy and self-management to teach writing skills
Sentence-Combining Technique	Visual Supports	Instructional package including teacher modeling, student practice, and worksheet to increase adjective use in writing
Test Taking Strategy Instruction	Cognitive Behavioral/ Instructional Strategies	Instructional package involving modeling, mnemonic devices, verbal practice sessions, controlled practice sessions, advanced practice sessions
Theory of Mind Training	Social Skills Treatment	Structured training and practice of using theory of mind skills that includes a parent component
Toilet Training	Antecedent-Based Intervention	Modification of toilet training program developed by Azrin and Foxx (1971)
Touch-Point Instruction	Visual Supports	Tactile and number line materials used to introduce math and numeracy concepts

Trends Across Time

Although the cumulative set of high-quality studies included in this review informed the identification of EBPs, the two time periods represented in this review (1990-2011 and 2012-2017) allow an examination of trends across time. The most apparent trend across time, noted in the introduction, was the accelerating number of articles that meet the methodological criteria for inclusion. For this review, there were more articles (i.e., those meeting methodological criteria) published between 2012-2017 (i.e., 545) as had been published in the previous two decades (1990-2011; 427). Although it is difficult to attribute this growth to any single factor, certainly the increased prevalence of autism has increased public awareness of the condition and the need for knowledge of supports for individuals with autism.

Experimental Methodology

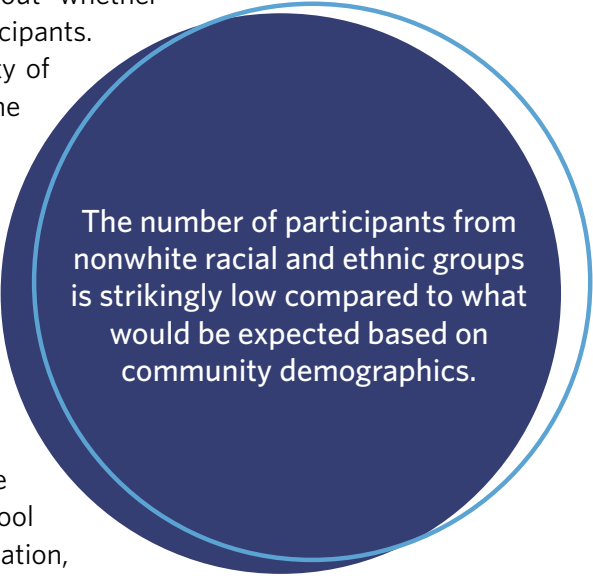
Along with the increase in articles have come some changes in the experimental designs that researchers employ. Over the two time periods, researchers continue to employ single case design most frequently, although the types of designs have changed somewhat. Researchers continue to use multiple baseline designs most often but less frequently in the current review period. This was also true of the traditional withdrawal of treatment designs (i.e., ABAB). In the 2012-2017 set of studies, researchers more often used multiple probe, alternating treatment, and “hybrid design” designated as “Other” (e.g., an ABAB design or alternating treatment design embedded in a multiple baseline design). For group designs, there was a dramatic increase in RCTs across the two time periods (7% vs. 21%), which may reflect the greater funding available for conducting RCTs as well as the methodological requirements of the funding agencies. Researchers in one study (Kasari et al., 2014) from the 2012-2017 literature employed an adaptive or SMART design (Murphy, 2005). Given the potential for examining differential response to interventions and provision of additional support needed, this design may be used more often in the future.

Participant Characteristics

Inclusion criteria specified that participants have a classification that reflected autism. It is interesting that the two time periods covered in this review loosely “map onto” the change in diagnostic terminology. In 2013, the APA, through DSM-5, changed the diagnostic criteria. The two subsets of articles reflect this historical diagnostic shift, with the 2012-2017 set of articles more often including ASD as an identifier than occurred for the older set of articles. Interestingly, studies in the current review tended not to delineate co-occurring conditions, although when such information was included intellectual disability was identified most often (i.e., in 20 % of the studies). Given the recent reports of the prevalence of intellectual disability among autistic children (e.g., 33% reported in Maenner et al., 2020) and the report of co-occurring mental health conditions (Lai et al., 2019), this may represent under reporting in the literature.

The ages of participants shifted in the 2012-2017 review period, with more studies including students in the middle and early high school years (through age 18) than in the previous review. This is an important trend in the literature, given the more limited EBPs and outcomes noted for these age groups in the previous review and the concerning life trajectory for this population after high school. However, the proportions of studies that included autistic young adults (ages 19-22) and very young children directly following a diagnosis (up to 35 months) were quite low (5% and 8% respectively) and remained relatively stable between the two review periods.

In the 2012-2017 review period, we collected information about whether researchers reported the race/ethnicity/nationality of autistic participants. In the earlier review, we did not code the race/ethnicity/nationality of participants, but fortunately West and colleagues (2016) recoded the early set of articles to retrieve those data, which can serve as a point of comparison. West et al. found that only 17.9% of the articles from 1990-2011 reported race/ethnicity/nationality, while in the 2012-2017 review period, 30% of the reviewed articles reported these data. In both sets of studies, Black and Hispanic/Latino were the most frequent nonwhite racial/ethnic categories reported. The number of participants from nonwhite racial and ethnic groups in the subset of studies that reported this data is strikingly low compared to what would be expected based on community demographics. For example, only 8% of research participants were Hispanic/Latino, while in the United States alone 26% of the school age population identify as Hispanic (U.S. Department of Education, 2017). Also, our impressions from reviewing the studies are that differential treatment outcomes were not examined, which is consistent with findings by Pierce et al. (2014) in an analysis of studies published between 2000-2010. Last, socioeconomic class (SES) of participants is rarely described for autistic participants in research studies, so the possibility of determining how SES affects treatment outcomes is largely not possible.



The number of participants from nonwhite racial and ethnic groups is strikingly low compared to what would be expected based on community demographics.

Implementation Characteristics

Information on the intervention setting, implementer, and group size is available from the 2012-2017 review period. Although the intervention settings were distributed across clinic, university, and educational settings, they occurred most frequently (50%) in the latter settings. Commenting perhaps on earlier research literature, Parsons & Kasari (2013) lamented the fact that most intervention research was not occurring in the educational settings where many children and youth with autism spend a great part of their life. In the current review, 50% of the research was conducted in education settings, the largest of any setting reported. While an important step in the right direction, the majority of the research is still being conducted in individual sessions by research staff members. Certainly, directions for the future would be to more often examine the efficacy of interventions when implemented in “authentic” educational settings by practitioners such as teachers, speech pathologists, psychologists, and other service providers.

Outcomes

Outcomes for intervention participants have also shifted somewhat from the 1990-2011 to the 2012-2017 review period. As noted, researchers reported communication, social, and behavior outcomes most frequently across both review periods, as would be expected given that these are the challenges that define autism. When examining the changes in trends across the previous and current review, there were notable increases in studies that successfully targeted academic/pre-academic skills, vocational, and mental health. Most other outcome categories remained relatively stable or decreased in the numbers of studies between the two reviews. Also, it should be noted that self-determination was added to the set of outcome categories and while only addressed by a few studies in the current report, it represents an emerging area of intervention focus.

Evidence Included in Current NCAEP Review

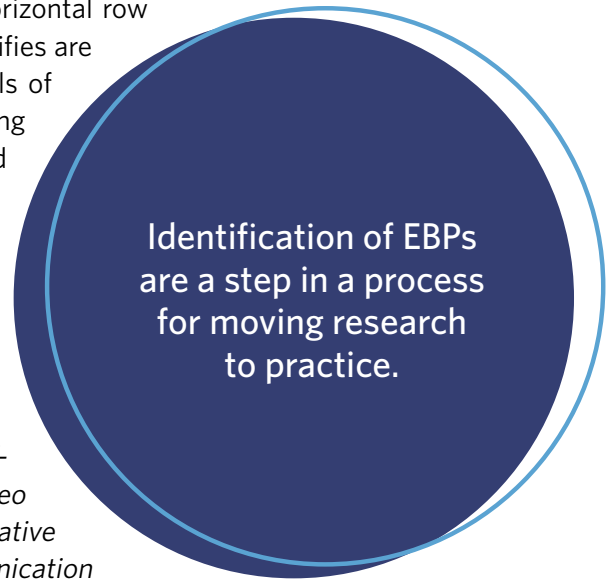
The current review included group, and single case design studies published in peer-reviewed journals. As reported in the previous chapter, nearly 85% of the included studies employed single case design. Although the NSP also included single case design research, other investigators have generally not included single case design research studies in systematic reviews and meta-analyses (Sandbank et al., 2020), although there is some inclination that review practices are changing (Watkins et al., 2019). The exclusion of single case design research is based on the perception that randomized clinical trials are the “gold standard” for experimental research, and studies employing other experimental methodologies do not provide the level of evidence necessary for drawing conclusions about the efficacy of interventions or treatments.

In the current review, the rationale for including single case and group designs is that they both can address efficacy of focused intervention practices. However, that is just the first step. A decision about the level of evidence needed to be confident in the effects of an intervention should be based on (a) scrutiny of individual research studies by the scientific community (i.e., peer-review), (b) the methodological quality of individual research studies, (c) accumulation of evidence across studies, and (d) replication of effects by independent research groups. Peer-review is a foundation of scientific inquiry (Kelly et al., 2014), although it is not a perfect system. So, the quality of articles included in this review were evaluated by at least two external reviewers and then one or two additional NCAEP reviewers when required. The accumulation of evidence was based on the number of high-quality articles supporting a specific practice. Given that single case design studies have fewer participants, a higher standard was imposed for the number of single case design articles needed to verify a practice as evidence-based. The review also went beyond most other systematic reviews of EBPs by requiring that research studies of a specific practice be replicated by separate research groups, again with a higher standard imposed on single case designs (i.e., three research groups required for single case designs and two for group designs). It should be noted that this independent replication requirement is a more conservative criterion than commonly utilized in the field. For example, the Institute of Education Science has dropped the requirement for independent replications of single case designs (Schneider, 2020; What Works Clearinghouse, 2020). The Every Student Succeeds Act (ESSA, 2015) requires only one significant finding to qualify a practice as evidence-based. The more conservative standards for single case design evidence is, in part, a reaction to the health community’s rejection or lack of knowledge about this design methodology and the decisions to not accept single case methodology as evidence. However, if we had followed that policy, our analysis would have left out 85% of the knowledge base about focused intervention practices for children and youth with autism.

Overlap with Previous National Standards Project Review

As noted, both NPDC and the National Standards Project (NSP) published reports of their systematic reviews of the literature and identification of evidence-based practices in 2014 (Wong et al., 2014) and 2015 (National Autism Center, 2015). In Table 4.3, we compare the EBPs identified in the current review with those the NSP identified in their last review. At this writing, we understand that the NSP is conducting an update of their 2015 review, and when that report is published, we will revise the current figure and post it on the NCAEP website.

In Table 4.3, the EBPs that the NSP identified are listed in the horizontal row across the top of the table. The EBPs that this NCAEP report identifies are listed in the vertical column down the side of the table. The cells of this matrix in which checkmarks appear indicate a practice appearing in both reports. Nineteen of the NCAEP EBPs were also identified as established interventions in the NSP report. The NSP groups multiple applied behavior analysis practices within a broad category called Behavioral Interventions. In our reading of the NSP report, twelve of the NCAEP EBPs would be classified into the Behavioral Intervention category. Other overlaps in identification of EBPs are *Cognitive Behavior Instructional Strategies*, *Modeling*, *Naturalistic Intervention*, *Parent-Implemented Intervention*, *Peer-Based Instruction and Intervention*, *Visual Supports*, *Self-Management*, *Social Narratives*, *Social Skills Training*, and *Video Modeling*. Five of the NCAEP EBPs (*Augmentative and Alternative Communication*, *Exercise and Movement*, *Functional Communication Training*, *Music-Mediated Intervention*, and *Technology-Aided Intervention and Instruction*) were identified as emerging interventions (i.e., some evidence but not sufficient to be classified as an EBP). NCAEP identified four EBPs that were not included in the NSP previous report (*Behavioral Momentum Intervention*, *Direct Instruction*, *Functional Behavior Assessment*, and *Sensory Integration*[®]). Alternatively, NSP identified Language Training (Production) as an established intervention, whereas it was not included in the current NCAEP report. NSP also included Comprehensive Behavioral Treatment for Young Children, and NCAEP did not consider comprehensive treatment models in the current review. In summary, there continues to be a substantial overlap in EBPs identified by these two independent reviews.



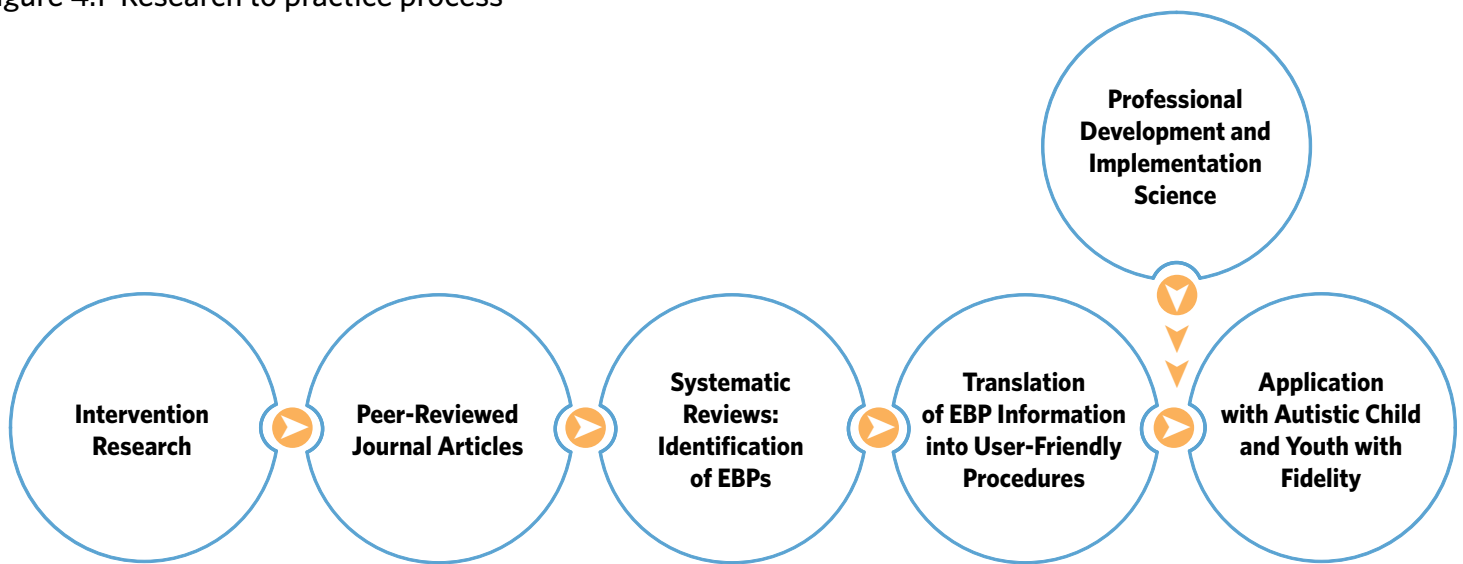
Implications for Practice

Identification of EBPs is a step in a process for moving research to practice (see Figure 4.1). In the field, there appears to be a misapprehension of the purpose for identifying evidence-based practices and how they might affect the use of scientific information about effective interventions for children and youth with autism (Kasari & Smith, 2016). It is naïve to believe that merely identifying a set of evidence-based practices will lead to a change in implementation of those practices by professionals (Odom, 2009). Rather, intervention research and research syntheses are crucial steps in the process; they are necessary but not individually sufficient steps.

Table 4.3 Overlap between evidence-based practices identified by NCAEP and NSP

Evidence-Based Practices Identified (NCAEP)	Established Interventions Identified by NSP													
	Behavioral Interventions	Cognitive Behavioral Intervention Package	Modeling	Naturalistic Teaching Strategies	Parent Training	Peer Training Package	Pivotal Response Treatment®	Schedules	Scripting	Self-management	Social Skills Package	Story-based Intervention	Language Training (Production)	Comprehensive Behavioral Treatment for Young Children
Antecedent-Based Intervention (ABI)	✓													The NCAEP did not review comprehensive treatment models. Components of the Comprehensive Behavioral Treatment of Young Children may overlap with many NCAEP identified practices, such as discrete trial training, modeling, prompting, reinforcement, visual supports, and music-mediated interventions.
Cognitive Behavioral Instructional Strategies (CBIS)		✓											Language training did not emerge as a focused intervention by the NCAEP. Components of Language Training (Production) overlap with NCAEP identified practices that may support language production, such as modeling, prompting, reinforcement, visual supports, and music-mediated interventions.	
Differential Reinforcement (DR)	✓													
Discrete Trial Training (DTT)	✓													
Extinction (EXT)	✓													
Modeling (MD)	✓		✓											
Naturalistic Interventions (NI)				✓										
Parent-Implemented Interventions (PII)					✓									
Peer-Based Instruction & Intervention (PBII)						✓								
Prompting (PP)	✓								✓					
Reinforcement (R)	✓													
Response Interruption & Redirection (RIR)	✓													
Self-Management (SM)									✓					
Social Narratives (SN)												✓		
Social Skills Training (SST)										✓				
Task Analysis (TA)	✓													
Time Delay (TD)	✓													
Video Modeling (VM)	✓											✓		
Visual Supports (VS)	✓												✓	
Augmentative & Alternative Communication (AAC)														Identified as an emerging intervention by the NSP.
Exercise & Movement (EXM)														Identified as an emerging intervention by the NSP.
Functional Communication Training (FCT)														Identified as an emerging intervention by the NSP.
Music-Mediated Interventions (MMI)														Identified as an emerging intervention by the NSP.
Technology-aided Instruction & Intervention (TAII)														Identified as an emerging intervention by the NSP.
Behavior Momentum Intervention (BMI)														The NSP did not consider this as a category for intervention.
Direct Instruction (DI)														The NSP did not consider this as a category for intervention.
Functional Behavior Assessment (FBA)														The NSP did not consider this as a category for intervention.
Sensory Integration® (SI)														The NSP did not consider this as a category for intervention.

Figure 4.1 Research to practice process



The findings from systematic reviews provide the basis for translation procedures described in the research literature into understandable information that teachers or other practitioners can use. After publication of the Wong et al. (2014) report, our research group led by Dr. Ann Sam, developed online e-learning modules that described EBP procedures, steps for implementing the practices, and fidelity checklists (<https://afirm.fpg.unc.edu>). Titled the *Autism Focused Intervention Resources and Modules* (AFIRM), these modules have been accessed by professionals from a variety of disciplines and parents (Sam et al., 2019). At this writing, AFIRM has had over 135,000 users across 170 countries in the world. The next step for this current review will be to use the new information to revise the modules to reflect the most current scientific information about focused intervention practices.


Again, while this translation process as seen in AFIRM or conducted by other investigators is necessary, it is also a link in the chain for moving research to practice. Some practitioners will be able to take the translated information about EBPs and directly apply it in their classrooms, but implementation science informs us that additional steps are needed for most practitioners. Professional development, such as coaching, and organizational support are all factors that may be necessary for closing the last link of the research to practice gap.

An essential feature of this professional development is establishing a process for selecting specific EBPs to address an autistic child's individual goals. The Matrix of EBPs, outcomes and age categories (Table 3.7) is an important tool for beginning the EBP selection process, in that it highlights the outcome areas in which specific EBPs have demonstrated effects for specific ages. However, that is just a start. Like in evidence-based medicine, the selection of intervention approaches depends on the practitioners' wisdom and knowledge about the specific goal, the characteristics of the child, priorities of the parents and child, and the practitioners' own capacity to implement the practice given their context and resources. The AFIRM website highlights just such a process (National Professional Development Center on Autism Spectrum Disorder, 2017). The assumption that a practitioner should learn all 28 practices is not correct. Rather a more targeted approach based on the learning needs of autistic children and adolescents is the most practical approach that will close the research to practice gap.

Implications for Future Research

The acceleration in intervention research publications from the previous review to the current review is remarkable. More articles from 2012-2017 met our review criteria than in the 1990-2011 review period. One implication is that synthesizing the literature every five years may not be sufficient for keeping up with the literature, and an ongoing process for research synthesis may be important for comprehensive reviews. Other synthesis organizations such as the Cochrane Collaboration, the Campbell Collaboration, and the What Works Clearinghouse synthesize information at the individual practice or program level, but that level of synthesis will not be adequate to meet the needs of practitioners (e.g., teachers, clinicians) who have the mandate to use EBPs in their programs.

The current literature review also reports the outcome areas for which there has been considerable research and those in which research is needed. The matrix of EBPs, outcomes, and age categories in Table 3.7 highlights these areas. Although more research has positively impacted mental health and vocational outcomes as compared with the previous report, both of these domains have fewer outcomes reported than others. The mental health challenges (Lai et al., 2019) and vocational training needs (i.e., as reflected by poor employment outcomes after graduation; Roux et al., 2017) of autistic children and youth continue to be documented as high need areas. Findings from the current review suggest that these are very important directions for future research. Also, there is a growing recognition that autistic children and youth can and should play a larger part in determining aspects of their educational and intervention programs, thus self-determination has emerged as an important area for which intervention programs will be needed. To date, few interventions have been published showing positive effects in this outcome area.



The acceleration in intervention research publications from the previous review to the current review is remarkable.

Increasingly, the importance of examining intervention effects for children and youth with autism from different demographic groups is emerging. In the previous review, we noted that fewer studies are conducted with autistic adolescents than younger children. We also found less research focused on the infant/toddler age range. These trends continued in the current review and suggest a need for focusing future research on both the youngest and older age groups of children and youth with autism. Also, to date the race and ethnicity of autistic children and youth has been underreported and rarely ever analyzed. Even when it is reported, racially and ethnically diverse individuals are underrepresented among participants. With the changing racial and ethnic demographics of all children and youth in the U.S., it will be increasingly important to change reporting standards, increase efforts to recruit participants from racially and ethnically diverse backgrounds, and conduct more targeted analyses of possible differential effects. Although the gender and/or sex of participants in studies are almost always reported, there have been few studies that have examined the differential effects of interventions for girls. Although girls only represent about 25% of the identified population of autistic children and youth, with the rise in overall prevalence of autism, it may become increasingly possible to recruit enough autistic girls to build the required power for group design studies.

Limitations

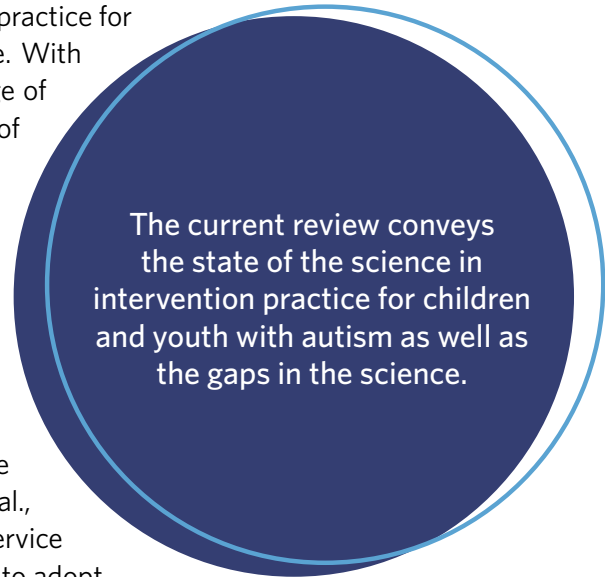
As with nearly any review, we acknowledge that some limitations exist for this review. As noted, the review was only of studies published from 1990-2017. Two limitations exist regarding this timeframe. First, we acknowledge that we are missing studies that occurred before 1990, although one might expect early (i.e., pre-1990) studies of important and effective practices to have been replicated in publications over subsequent years. Second, because of the time required to conduct a review of a very large database and involve a national set of reviewers, there was a lag between the end date for a literature review (i.e., 2017) and the date on which the review is published. Certainly, studies have been published in the interim that could have moved some of the “other practices” into the EBP classification.

Regarding the methodology of the review and as mentioned previously, this was clearly a systematic review of the literature and not a meta-analysis. The review only contained peer-reviewed journal articles. We did provide our rationale with regard to following peer review as part of the established scientific process, but it is possible that the review did contain publication bias. Also, we did not include studies with null findings. In fact, experimental studies are rarely set up with a research question of no difference, although there are methodological procedures for addressing such a question (Greene et al., 2007). Research studies with a hypothesis of treatment condition differences that instead “prove the null hypothesis” run the greater risk of Type II error. For the review, we had two reviewers for the methodological quality review and data extraction phases of the study and found adequate inter-rater agreement. However, during the early phases that screened for exclusion (i.e., title/abstract and full-text review), only one reviewer conducted these screening activities so it is possible that error could have occurred at that point in the process. In addition, our review only included articles that were published in English, thus possibly limiting the scope and generalizability of the findings.

The age range of participants in the studies reviewed was from birth to 22 years old, or the typical school-age years (i.e., if one counts early intervention). We noted a smaller set of studies for autistic infants and toddlers. The inclusion criteria in this study specified that participants had to have a diagnosis of ASD. For infants and toddlers, participants were sometimes identified as “children at-risk” for autism and the study was excluded. This may have inadvertently reduced the number of studies in this area. At the other end of the age spectrum, we were able to collect information for young adults, but the top end of the age range was 22. There is increased recognition that the field needs information about interventions that are effective with autistic adults and not including such information is a limitation.

Conclusion

The current review conveys the state of the science in intervention practice for children and youth with autism as well as the gaps in the science. With regard to the state of the science, the volume and theoretical range of the literature has expanded, which led to the reconceptualization of some EBP categories and addition of new EBPs. This bodes well for a field that is searching for an empirical base for its practice and also for autistic children and youth and their families, who may expect that advances in intervention science will lead to better outcomes. The prospect of better outcomes, however, is couched on the need for translating scientific results into intervention practices that service providers may access and providing professional development and support for implementing the practices with fidelity. Fortunately, the field of implementation science may provide the needed guidance for such a translational process (Odom et al., 2019) and professional development models for teachers and service providers working with children and youth with autism have begun to adopt an implementation science approach (Odom et al. 2012; Odom et al., 2013). Such movement, from science to practice, is a clear challenge and also an important step for the field.



References

- Afshari, J. (2012). The effect of perceptual-motor training on attention in the children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 6(4), 1331-1336. <https://doi.org/10.1016/j.rasd.2012.05.003>
- American Academy of Pediatrics (2010). Auditory integration training and facilitated communication for autism policy statement. Retrieved September 20, 2010 at <http://aappolicy.aappublications.org/cgi/content/full/pediatrics;102/2/431>.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: Diagnostic and statistical manual of mental disorders* (5th ed.). Author.
- Ayres, A. J. (2005). *Sensory integration and the child: Understanding hidden sensory challenges*. Western Psychological Services.
- Baio, J., Wiggins, L., Christensen, D. L., Maenner, M. J., Daniels, J., Warren, Z., Kurzius-Spencer, M., Zahorodny, W., Robinson Rosenburg, C., White, T., Durkin, M. S., Imm, P., Nikolaou, L., Yeargin-Allsopp, M., Lee, L.-C., Harrington, R., Lopez, M., Fitzgerald, R. T., Hewitt, A., ... Dowling, N. F. (2018). Prevalence of autism spectrum disorder among children aged 8 years — Autism and Developmental Disabilities Monitoring Network, 11 sites, United States, 2014. *MMWR Surveillance Summary*, 67(6), 1-26. https://www.cdc.gov/mmwr/volumes/67/ss/ss6706a1.htm?s_cid=ss6706a1_w
- Barton, E. E., Reichow, B., Schnitz, A., Smith, I. C., & Sherlock, D. (2015). A systematic review of sensory-based treatments for children with disabilities. *Research in Developmental Disabilities*, 37(1), 64-80. <http://doi.org/10.1016/j.ridd.2014.11.006>
- Becker, J. L., Rogers, E. C., & Burrows, B. (2017). Animal-assisted social skills training for children with autism spectrum disorders. *Anthrozoös*, 30(2), 307-326. <https://doi.org/10.1080/08927936.2017.1311055>
- Bishop, M. R., Kenzer, A. L., Coffman, C. M., Tarbox, C. M., Tarbox, J., & Lanagan, T. M. (2013). Using stimulus fading without escape extinction to increase compliance with tooth-brushing in children with autism. *Research in Autism Spectrum Disorders*, 7(6), 680-686. <https://doi.org/10.1016/j.rasd.2013.02.004>
- Blumberg, S. J., Bramlett, M. D., Kogan, M. D., Schieve, L. A., Jones, J. R., & Lu, M. C. (2013). Changes in prevalence of parent-reported autism spectrum disorder in school-aged U.S. children: 2007 to 2011-2012. *National health statistics reports*, 65. National Center for Health Statistics.
- Bondy, A., & Frost, L. (2001). The picture exchange communication system. *Behavior Modification*, 25(5), 725-744. <https://doi.org/10.1177/0145445501255004>
- Brown, L. (2011, August 4). The significance of semantics: Person-first language: Why it matters. *Autistic Hoya*. <https://www.autistichoya.com/2011/08/significance-of-semantics-person-first.html>
- Case-Smith, J., Weaver, L. L., & Fristad, M. A. (2015). A systematic review of sensory processing interventions for children with autism spectrum disorders. *Autism*, 19(2), 133-148. <https://doi.org/10.1177%2F1362361313517762>
- Chambless, D. L., & Hollon, S. D. (1998). Defining empirically supported therapies. *Journal of Consulting and Clinical Psychology*, 66(1), 7-18. <https://doi.org/10.1037/0022-006X.66.1.7>
- Chambless, D. L., Sanderson, W. C., Shoham, V., Bennett Johnson, S., Pope, K. S., Crits-Christoph, P., Baker, M., Johnson, B., Woody, S. R., Sue, S., Beutler, L., Williams, D. A., & McCurry, S. (1996). An update on empirically validated therapies. *Clinical Psychologist*, 49(2), 5-18. <https://doi.org/10.1037/e555332011-003>

- Cox, A. W., Brock, M. E., Odom, S. L., Rogers, S. J., Sullivan, L. H., Tuchman-Ginsberg, L., Franzone, E. L., Szidon, K., & Collet-Klingenberg, L. (2013). National Professional Development Center on autism spectrum disorders: An emerging national educational strategy. In P. Doehring (Ed.), *Autism services across America: Road maps for improving state and national education, research, and training programs* (pp. 249-268). Brookes Publishing.
- DeRosa, N. M., Roane, H. S., Bishop, J. R., & Silkowski, E. L. (2016). The combined effects of noncontingent reinforcement and punishment on the reduction of rumination. *Journal of Applied Behavior Analysis, 49*(3), 680-685. <https://doi.org/10.1002/jaba.304>
- Dominguez, A., Wilder, D. A., Cheung, K., & Rey, C. (2014). The use of a verbal reprimand to decrease rumination in a child with autism. *Behavioral Interventions, 29*(4), 339-345. <https://doi.org/10.1002/bin.1390>
- Donaldson, A. L., Krejcha, K., & McMillin, A. (2017). A strengths-based approach to autism: Neurodiversity and partnering with the autism community. *Perspectives of the ASHA Special Interest Groups, 2*(1), 56-68. <https://doi.org/10.1044/persp2.SIG1.56>
- Dupuis, D. L., Lerman, D. C., Tsami, L., & Shireman, M. L. (2015). Reduction of aggression evoked by sounds using noncontingent reinforcement and time-out. *Journal of Applied Behavior Analysis, 48*(3), 669-674. <https://doi.org/10.1002/jaba.220>
- Edelson, S. M., Arin, D., Bauman, M., Lukas, S. E., Rudy, J. H., Sholar, M., & Rimland, B. (1999). Auditory integration training a double-blind study of behavioral and electrophysiological effects in people with autism. *Focus on Autism and Other Developmental Disabilities, 14*(2), 73-81. <https://doi.org/10.1177/108835769901400202>
- Ellis, E. M., Ala'i-Rosales, S. S., Glenn, S. S., Rosales-Ruiz, J., & Greenspoon, J. (2006). The effects of graduated exposure, modeling, and contingent social attention on tolerance to skin care products with two children with autism. *Research in Developmental Disabilities, 27*(6), 585-598. <https://doi.org/10.1016/j.ridd.2005.05.009>
- Every Student Succeeds Act, Publ. L. No. 114-95, 129 Stat. 1802 (2015). <https://www.congress.gov/114/plaws/publ95/PLAW-114publ95.pdf>
- FazioDlu, Y., & Baran, G. (2008). A sensory integration therapy program on sensory problems for children with autism. *Perceptual and Motor Skills, 106*(2), 415-422. <https://doi.org/10.2466/pms.106.2.415-422>
- Fidler, F., & Wilcox, J. (2018). Reproducibility of scientific results. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2018 ed.). Metaphysics Research Lab, Center for the Study of Language and Information, Stanford University. <https://plato.stanford.edu/archives/win2018/entries/scientific-reproducibility/>
- Field, T., Lasko, D., Mundy, P., Henteleff, T., Kabat, S., Talpins, S., & Dowling, M. (1997). Brief report: Autistic children's attentiveness and responsivity improve after touch therapy. *Journal of Autism and Developmental Disorders, 27*(3), 333-338. <https://doi.org/10.1023/A:1025858600220>
- Frampton, S. E., Wymer, S. C., & Hansen, B. (2016). The use of matrix training to promote generative language with children with autism. *Journal of Applied Behavior Analysis, 49*(4), 869-883. <https://doi.org/10.1002/jaba.340>
- Frost, L., & Bondy, A. (2002). *The picture exchange communication system training manual* (2nd ed.). Pyramid Educational Products.
- Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C. R., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children, 71*(2), 149-164. <https://doi.org/10.1177/001440290507100202>
- Golan, O. & Baron-Cohen, S. (2006). Systemizing empathy: Teaching adults with Asperger syndrome or high-functioning autism to recognize complex emotions using interactive multimedia. *Development and Psychopathology, 18*(2), 591-617. <https://doi.org/10.1017/S0954579406060305>

- Gray, C. (2000). *The new social story book*. Future Horizons.
- Gray, C. A., & Garand, J. D. (1993). Social stories: Improving responses of students with autism with accurate social information. *Focus on Autistic Behavior*, 8(1), 1-10. <https://doi.org/10.1177/108835769300800101>
- Greene, C. J., Morland, L. A., Durkalski, V. L., & Frueh, B. C. (2007). Noninferiority and equivalence designs: Issues and implications for mental health research. *Journal of Traumatic Stress*, 21(5), 433-439. <https://doi.org/10.1002/jts.20367>
- Hagner, D., Kurtz, A., Cloutier, H., Arakelian, C., Brucker, D. L., & May, J. (2012). Outcomes of a family-centered transition process for students with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities*, 27(1), 42-50. <https://doi.org/10.1177/1088357611430841>
- Hodges, A., Davis, T., Crandall, M., Phipps, L., & Weston, R. (2017). Using shaping to increase foods consumed by children with autism. *Journal of Autism and Developmental Disorders*, 47(8), 2471-2479. <https://doi.org/10.1007/s10803-017-3160-y>
- Hopkins, I. M., Gower, M. W., Perez, T. A., Smith, D. S., Amthor, F. R., Wimsatt, F. C., & Biasini, F. J. (2011). Avatar assistant: Improving social skills in students with an ASD through a computer-based intervention. *Journal of Autism and Developmental Disorders*, 41(11), 1543-1555. <https://doi.org/10.1007/s10803-011-1179-z>
- Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single subject research to identify evidence-based practice in special education. *Exceptional Children*, 71(2), 165-180. <https://doi.org/10.1177/001440290507100203>
- Horner, R. H., & Odom, S. L. (2014). Constructing single-case research designs: Logic and options. In T. R. Kratochwill & J. R. Levin (Eds.), *Single-case intervention research: Methodological and data-analysis advances* (pp. 27-52). American Psychological Association.
- Ingersoll, B., & Dvortcsak, A. (2019). *The Project ImPACT manual for parents*. Guilford.
- Kaiser, A. P., & Roberts, M. Y. (2013). Parent-implemented enhanced milieu teaching with preschool children who have intellectual disabilities. *Journal of Speech, Language, and Hearing Research*, 56(1), 295-309. [https://doi.org/10.1044/1092-4388\(2012/11-0231\)](https://doi.org/10.1044/1092-4388(2012/11-0231))
- Kasari, C., Kaiser, A., Goods, K., Nietfeld, J., Mathy, P., Landa, R., Murphy, S., & Almirall, D. (2014). Communication interventions for minimally verbal children with autism: A sequential multiple assignment randomized trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, 53(6), 635-646. <https://doi.org/10.1016/j.jaac.2014.01.019>
- Kasari, C., Kaiser, A., Goods, K., Nietfeld, J., Mathy, P., Landa, R., ... & Almirall, D. (2014). Communication interventions for minimally verbal children with autism: A sequential multiple assignment randomized trial. *Journal of the American Academy of Child & Adolescent Psychiatry*, 53(6), 635-646.
- Kasari, C., & Smith, T. (2016). Forest for the trees: Evidence-based practices in ASD. *Clinical Psychology: Science and Practice*, 23(3), 260-264. <https://doi.org/10.1111/cpsp.12161>
- Kazdin, A. E. (2011). *Single-case research designs: Methods for clinical and applied settings* (2nd ed.). Oxford University Press.
- Kelly, J., Sadeghieh, T., & Adeli, K. (2014). Peer review in scientific publications: Benefits, critiques, & a survival guide. *Journal of the International Federation of Clinical Chemistry and Laboratory Medicine*, 25(3), 227-243. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4975196/>
- Kenny, L., Hetttersley, C., Molins, B., Buckley, C., Povey, C., & Pellicano, E. (2016). Which terms should be used to describe autism? Perspectives from the UK autism community. *Autism*, 20(4), 442-462. <https://doi.org/10.1177/1362361315588200>
- Koegel, R. L., & Koegel, L. K. (2006) *Pivotal response treatments for autism: Communication, social, and academic development*. Paul H. Brookes.

- Lai, M.-C., Kassee, C., Besney, R., Bonato, S., Hull, L., Mandy, W., Szatmari, P., & Ameis, S. H. (2019). Prevalence of co-occurring mental health diagnoses in the autism population: A systematic review and meta-analysis. *Lancet*, *6*(10), 819-829. [http://doi.org/10.1016/S2215-0366\(19\)30289-5](http://doi.org/10.1016/S2215-0366(19)30289-5)
- Laugeson, E. A., & Frankel, F. (2010). *Social skills for teenagers with developmental and autism spectrum disorders: The PEERS treatment manual*. Routledge.
- Laugeson, E. A., Frankel, F., Mogil, C., & Dillon, A. R. (2009). Parent-assisted social skills training to improve friendships in teens with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *39*(4), 569-606. <https://doi.org/10.1007/s10803-008-0664-5>
- MacManus, C., MacDonald, R., & Ahearn, W. H. (2015). Teaching and generalizing pretend play in children with autism using video modeling and matrix training. *Behavioral Interventions*, *30*(3), 191-218. <https://doi.org/10.1002/bin.1406>
- Maenner, M. J., Shaw, K. A., Baio, J., Washington, A., Patrick, M., DiRienzo, M., Christensen, D. L., Wiggins, L. D., Pettygrove, S., Andrews, J. G., Lopez, M., Hudson, A., Baroud, T., Schwenk, Y., White, T., Robinson Rosenberg, C., Lee, L.-C., Harrington, R. A., Huston, M., ... Dietz, P. M. (2020). Prevalence of autism spectrum disorder among children aged 8 years — Autism and Developmental Disabilities Monitoring Network, 11 sites, United States, 2016. *MMWR Surveillance Summary*, *69*(4), 1-12. <http://dx.doi.org/10.15585/mmwr.ss6904a1>
- Mandy, W., Murin, M., Baykaner, O., Staunton, S., Cobb, R., Hellriegel, J., Anderson, S., & Skuse, D. (2016). Easing the transition to secondary education for children with autism spectrum disorder: An evaluation of the systematic transition in education programme for autism spectrum disorder (STEP-ASD). *Autism*, *20*(5), 580-590. <https://doi.org/10.1177/1362361315598892>
- Marcus, L., Schopler, L., & Lord, C. (2000). TEACCH services for preschool children. In J. Handleman & S. Harris (Eds.), *Preschool education programs for children with autism* (2nd ed., pp. 215-232). PRO-ED.
- McGrew, J. H., Ruble, L. A., & Smith, I. A. (2016). Autism spectrum disorder and evidence-based practice in psychology. *Clinical Psychology: Science and Practice*, *23*(3), 239-255. <https://doi.org/10.1111/cpsp.12160>
- McVey, A. J., Dolan, B. K., Willar, K. S., Pleiss, S., Karst, J. S., Casnar, C. L., Caiozzo, C., Voght, E. M., Gordon, N. S., & Van Hecke, A. V. (2016). A replication and extension of the PEERS[®] for young adults social skills intervention: Examining effects on social skills and social anxiety in young adults with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *46*(12), 3739-3754. <https://doi.org/10.1007/s10803-016-2911-5>
- Murphy, S. A. (2005). An experimental design for the development of adaptive treatment strategies. *Statistics in Medicine*, *24*(10), 1455-1481. <https://doi.org/10.1002/sim.2022>
- Nathan, P. E., & Gorman, J. M. (Eds.). (2007). *A guide to treatments that work* (3rd ed.). Oxford University Press. <https://doi.org/10.1093/med:psych/9780195304145.001.0001>
- National Autism Center. (2009). *National standards report*. <https://www.nationalautismcenter.org/reports/>
- National Autism Center. (2015). *Findings and conclusions: National standards project, phase 2*. <https://www.nationalautismcenter.org/national-standards-project/results-reports/>
- National Professional Development Center on Autism Spectrum Disorder. (2017). *Selecting an EBP*. Autism Focused Intervention Resources & Modules. <https://afirm.fpg.unc.edu/selecting-ebp>
- National Research Council. (2001). *Educating children with autism*. The National Academies Press. <https://doi.org/10.17226/10017>
- Odom, S. L. (2009). The tie that binds: Evidence-based practice, implementation science, and outcomes for children. *Topics in Early Childhood Special Education*, *29*(1), 53-61. <https://doi.org/10.1177%2F0271121408329171>

- Odom, S. L. (2019). Peer-based interventions for children and youth with autism spectrum disorder: History and effects. *School Psychology Review*, 48(2), 170-176. <https://doi.org/10.17105/spr-2019-0019.v48-2>
- Odom, S. L., Boyd, B. A., Hall, L. J., & Hume, K. (2010). Evaluation of comprehensive treatment models for individuals with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 40(4), 425-436. <https://doi.org/10.1007/s10803-009-0825-1>
- Odom, S. L., Boyd, B., Hall, L., & Hume, K. A. (2014). Comprehensive treatment models for children and youth with autism spectrum disorders. In F. R. Volkmar, R. Paul, S. J. Rogers, & K. A. Pelphrey (Eds.), *Handbook of autism and pervasive developmental disorders* (4th ed., Vol. 2, pp. 770-778). John Wiley & Sons. 10.1002/9781118911389
- Odom, S. L., Collet-Klingenberg, L., Rogers, S. J., & Hatton, D. D. (2010). Evidence-based practices for children and youth with autism spectrum disorders. *Preventing School Failure: Alternative Education for Children and Youth*, 54(4), 275-282. <https://doi.org/10.1080/10459881003785506>
- Odom, S. L., Cox, A. W., Brock, M. E., & National Professional Development Center on ASD. (2013). Implementation science, professional development, and autism spectrum disorders. *Exceptional Children*, 79(3), 233-251. <https://doi.org/10.1177/001440291307900207>
- Odom, S. L., Hall, L. J., & Suhrheinrich, J. (2019). Implementation science, behavior analysis, and supporting evidence-based practices for individuals with autism. *European Journal of Behavior Analysis*. Advance online publication. <http://doi.org/10.1080/15021149.2019.1641952>
- Odom, S. L., Hume, K., Boyd, B., & Stabel, A. (2012). Moving beyond the intensive behavior therapy vs. eclectic dichotomy: Evidence-based and individualized program for learners with ASD. *Behavior Modification*, 36(3), 270-297. <https://doi.org/10.1177/0145445512444595>
- Parsons, S., & Karsari, C. (2013). Schools at the centre of educational research in autism: Possibilities, practices and promises. *Autism*, 17(3), 251-253. <http://doi.org/10.1177/1362361313483624>
- Pelios, L. V., MacDuff, G. S., & Axelrod, S. (2003). The effects of a treatment package in establishing independent academic work skills in children with autism. *Education and Treatment of Children*, 26(1), 1-21.
- Pierce, N. P., O'Reilly, M. F., Sorrells, A. M., Fragale, C. L., White, P. J., Aguilar, J. M., & Cole, H. A. (2014). Ethnicity reporting practices for empirical research in three autism-related journals. *Journal of Autism and Developmental Disorders*, 44(7), 1507-1519. <https://doi.org/10.1007/s10803-014-2041-x>
- Rogers, S. J., & Vismara, L. A. (2008). Evidence-based comprehensive treatments for early autism. *Journal of Clinical Child & Adolescent Psychology*, 37(1), 8-38. <https://doi.org/10.1080/15374410701817808>
- Rogers, S. J., Hall, T., Osaki, D., Reaven, J., & Herbison, J. (2000). The Denver model: A comprehensive, integrated educational approach to young children with autism and their families. In J. Handleman & S. Harris (Eds.), *Preschool education programs for children with autism* (2nd ed., pp. 215-232). PRO-ED.
- Roux, A. M., Shattuck, P. T., Rast, J. E., & Anderson, K. A. (2017). *National autism indicators report: Developmental disability services and outcomes in adulthood*. Life Course Outcomes Research Program, A.J. Drexel Autism Institute, Drexel University. <https://drexel.edu/autismoutcomes/publications-and-reports/publications/National-Autism-Indicators-Report-Developmental-Disability-Services-and-Outcomes-in-Adulthood/>

- Ruble, L. A., Dalrymple, N. J., & McGrew, J. H. (2010). The effects of consultation on individualized education program outcomes for young children with autism: The collaborative model for promoting competence and success. *Journal of Early Intervention, 32*(4), 286-301. <https://doi.org/10.1177/1053815110382973>
- Ruble, L., McGrew, J. H., & Toland, M. D. (2013). Mechanisms of change in COMPASS consultation for students with autism. *Journal of Early Intervention, 35*(4), 378-396. <https://doi.org/10.1177/1053815114546495>
- Sackett, D. L., Rosenberg, W. M. C., Muir Gray, J. A., Haynes, R. B., & Richardson, W. S. (1996). Evidence based medicine: What it is and what it isn't. *British Medical Journal, 312*(7023), 71-72. <https://doi.org/10.1136/bmj.312.7023.71>
- Sam, A. M., Cox, A. W., Savage, M. N., Waters, V., & Odom, S. L. (2019). Disseminating information on evidence-based practices for children and youth with autism spectrum disorder: AFIRM. *Journal of Autism and Developmental Disorders*. Advance online publication. <https://doi.org/10.1007/s10803-019-03945-x>
- Sandbank, M., Bottema-Beutel, K., Crowley, S., Cassidy, M., Dunham, K., Feldman, J. I., Crank, J., Albarran, S. A., Raj, S., Mahbub, P., & Woynaroski, T. G. (2020). Project AIM: Autism intervention meta-analysis for studies of young children. *Psychological Bulletin, 146*(1), 1-29. <https://doi.org/10.1037/bul0000215>
- Schlosser, R. W., Hemsley, B., Shane, H., Todd, J., Lang, R., Lilienfeld, S. O., Trembath, D., Mostert, M., Fong, S., & Odom, S. (2019). Rapid prompting method and autism spectrum disorder: Systematic review exposes lack of evidence. *Review Journal of Autism and Developmental Disorders, 6*(4), 403-412. <https://doi.org/10.1007/s40489-019-00175-w>
- Schneider, M. (2020, Jan. 8). *IES Director's Welcome*. [Opening plenary]. Annual Institute of Education Sciences Principal Investigators Meeting, Washington, D. C.
- Seiverling, L., Williams, K., Sturmey, P., & Hart, S. (2012). Effects of behavioral skills training on parental treatment of children's food selectivity. *Journal of Applied Behavior Analysis, 45*(1), 197-203. <https://doi.org/10.1901/jaba.2012.45-197>
- Shadish, W. R., Cook, T. D., & Campbell, D. T. *Experimental and quasi-experimental designs for generalized causal inference*. Houghton Mifflin.
- Shattuck, P. T., Rast, J. E., Roux, A. M., Anderson, K. A., Benevides, T., Garfield, T., McGhee Hassrick, E., & Kuo, A. (2018). *National autism indicators report: High school students on the autism spectrum*. Life Course Outcomes Program, A.J. Drexel Autism Institute, Drexel University. <https://drexel.edu/autismoutcomes/publications-and-reports/publications/National-Autism-Indicators-Report-High-School-Students-on-the-Autism-Spectrum/>
- Sidman, M. (1960). *Tactics of scientific research*. Basic Books.
- Simpson, R. L. (2005). Evidence-based practices and students with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 20*(3), 140-149. <https://doi.org/10.1177/10883576050200030201>
- Siri, K., & Lyons, T. (2014). *Cutting edge therapies for autism* (4th ed.). Skyhorse Publishing.
- Smith, T. (2013). What is evidence-based behavior analysis? *The Behavior Analyst, 36*(1), 7-33. <https://doi.org/10.1007/bf03392290>
- Smith, T., Groen, A. D., & Wynn, J. W. (2000). Randomized trial of intensive early intervention for children with pervasive developmental disorder. *American Journal on Mental Retardation, 105*(4), 269-285. [https://doi.org/10.1352/0895-8017\(2000\)105<0269:rtoiei>2.0.co;2](https://doi.org/10.1352/0895-8017(2000)105<0269:rtoiei>2.0.co;2)
- Stahmer, A. C., Suhrheinrich, J., Reed, S., Schreibman, L., & Bolduc, C. (2011). *Classroom pivotal response teaching for children with autism*. Guilford Press.

- Strain, P. S., & Bovey, E. H. (2011). Randomized, controlled trial of the LEAP model of early intervention for young children with autism spectrum disorders. *Topics in Early Childhood Special Education, 31*(3), 133-154. <https://doi.org/10.1177/0271121411408740>
- Strain, P. S., & Hoyson, M. (2000). The need for longitudinal, intensive social skill intervention: LEAP follow-up outcomes for children with autism. *Topics in Early Childhood Special Education, 20*(2), 116-122. <https://doi.org/10.1177/027112140002000207>
- Turner, K. M., Markie-Dadds, C., & Sanders, M. R. (2010). *Practitioner's manual for primary care triple P*. Triple P International Pty.
- Urbanowicz, A., Nicolaidis, C., den Houting, J., Shore, S. M., Gaudion, K., Girdler, S., & Savarese, R. J. (2019). An expert discussion on strengths-based approaches in autism. *Autism in Adulthood, 1*(2), 82-89. <https://doi.org/10.1089/aut.2019.29002.aju>
- U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary and Secondary Education," 2000-01 and 2015-16; and National Elementary and Secondary Enrollment Projection Model, 1972 through 2027. See Digest of Education Statistics 2017, table 203.50.
- Watkins, L., Ledbetter-Cho, K., O'Reilly, M., Barnard-Brak, L., & Garcia-Grau, P. (2019). Interventions for students with autism in inclusive settings: A best-evidence synthesis and meta-analysis. *Psychological Bulletin, 145*(5), 490- 507. <https://doi.org/10.1037/bul0000190>
- Watling, R., & Hauer, S. (2015). Effectiveness of Ayres Sensory Integration[®] and sensory-based interventions for people with autism spectrum disorder: A systematic review. *American Journal of Occupational Therapy, 69*(5), 6905180030p.1-11. <http://doi.org/10.5014/ajot.2015.018051>
- West, E. A., Travers, J. C., Kemper, T. D., Liberty, L. M., Cote, D. L., McCollow, M. M., & Stansberry Brusnahan, L. L. (2016). Racial and ethnic diversity of participants in research supporting evidence-based practices for learners with autism spectrum disorder. *Journal of Special Education, 50*(3), 151-163. <http://doi.10.1177/0022466916632495>
- What Works Clearinghouse. (2020). *What Works Clearinghouse standards handbook, version 4.1*. U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance. <https://ies.ed.gov/ncee/wwc/Docs/referenceresources/WWC-Standards-Handbook-v4-1-508.pdf>
- Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., Brock, M. E., Plavnick, J. B., Fleury, V. P., & Schultz, T. R. (2015). Evidence-based practices for children, youth, and young adults with autism spectrum disorder: A comprehensive review. *Journal of Autism and Developmental Disorders, 45*(7), 1951-1966. <https://doi.org/10.1007/s10803-014-2351-z>
- Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., Brock, M. E., Plavnick, J. B., Fleury, V. P., & Schultz, T. R. (2014). *Evidence-based practices for children, youth, and young adults with autism spectrum disorder*. The University of North Carolina, Frank Porter Graham Child Development Institute, Autism Evidence-Based Practice Review Group. <https://autismpdc.fpg.unc.edu/sites/autismpdc.fpg.unc.edu/files/imce/documents/2014-EBP-Report.pdf>
- World Health Organization. (2015). *International statistical classification of diseases and related health problems, 10th revision (5th ed., 2016)*. Author. <https://apps.who.int/iris/handle/10665/246208>
- Zachor, D. A., Vardi, S., Baron-Eitan, S., Brodai-Meir, I., Ginossar, N., & Ben-Itzhak, E. (2017). The effectiveness of an outdoor adventure programme for young children with autism spectrum disorder: A controlled study. *Developmental Medicine & Child Neurology, 59*(5), 550-556. <https://doi.org/10.1111/dmcn.13337>





Appendix 1: Group Design Quality Appraisal Form

Question	Yes	No	Not Reported
Does the study have experimental and control/comparison groups?			
Were appropriate procedures used to increase the likelihood that relevant characteristics of participants in the sample were comparable across conditions? (To meet this standard, one of the following criteria must be met a) participants were randomly assigned across study conditions, b) participants were matched on key demographic variables, OR c) researchers statistically controlled for effects of differing key variables to ensure equivalence of groups.			
Were outcomes for capturing the intervention's effect measured at appropriate times (at least pre- and post-test)?			
Was there evidence for adequate reliability and validity for the key outcome measures? And/or when relevant, was inter-observer reliability assessed and reported to be at an acceptable level?			
Was the intervention described and specified clearly enough that it could be replicated by another interventionist?			
Was the control/comparison condition(s) described?			
Were the data analysis techniques appropriately linked to key research questions and hypotheses?			
Attrition was <u>not</u> a significant threat to internal validity.			
Was the measure of effect attributed to the intervention? (no obvious unaccounted confounding factors)			
Does the research report statistically significant positive effects of the practice for individuals with ASD for at least one outcome variable?			

Appendix 2: Single Case Design Quality Appraisal Form

Question	Yes	No	Not Reported
Does the dependent variable align with the research question or purpose of the study?			
Was the dependent variable clearly defined such that another person could identify an occurrence or nonoccurrence of the response?			
Does the measurement system align with the dependent variable and produce a quantifiable index?			
Did a secondary observer collect data on the dependent variable for at least 20% of the sessions across conditions?			
Was mean interobserver agreement (IOA) 80% or greater OR kappa of .60 or greater?			
Is the independent variable described with enough information to allow for a clear understanding about the critical differences between the baseline and intervention conditions, or were references to other published material used if description does not allow for a clear understanding?			
Was the baseline described in a manner that allows for a clear understanding of the differences between the baseline and intervention conditions? *Can select not reported for ATDs only			
Are the results displayed in a graphic format showing repeated measures for a single case (e.g., behavior, participant, group) across time?			
Do the results demonstrate changes in the dependent variable when the independent variable is manipulated by the experimenter at three different points in time or across three phase repetitions? *For ATD, must be at least 4 repetitions of alternating sequence **Changing criterion- baseline plus three intervention phases			

Appendix 3: Intervention fact sheets

Name of EBP		Antecedent-Based Intervention (ABI)					
Definition of EBP		<p>Antecedent-based interventions (ABI) include a variety of modifications that are made to the environment/context in an attempt to change or shape a learner's behavior. ABIs are typically implemented after conducting a functional behavior assessment which can assist in identifying the function of an interfering behavior as well as the environmental conditions that may have become linked to a behavior over time. Once factors in the environment that may be reinforcing interfering behavior have been identified, ABIs are implemented to modify the environment or activity so that the factor no longer elicits the interfering behavior. In addition to targeting challenging behaviors, ABI can also be used to increase the occurrence of desired behaviors or skills. Common ABI procedures include: 1) modifying educational activities, materials, or schedules, 2) incorporating learner choice into learner activities/materials, 3) preparing learners ahead of time for upcoming activities, 4) varying the format, level of difficulty, or order of instruction during educational activities, 5) enriching the environment to provide additional cues or access to additional materials, and 6) modifying prompting and reinforcement schedules and delivery. ABI strategies often are used in conjunction with other evidence-based practices such as functional communication training, extinction, and reinforcement.</p>					
Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓	✓	
	Social		✓	✓	✓		✓
	Joint attention						
	Play	✓	✓	✓			
	Cognitive						
	School readiness		✓	✓	✓		
	Academic/ Pre-academic		✓	✓		✓	
	Adaptive/ self-help	✓	✓	✓	✓	✓	
	Challenging/ Interfering behavior	✓	✓	✓	✓	✓	✓
	Vocational						
	Motor						
	Mental health			✓	✓	✓	
	Self-determination						
References							
<ol style="list-style-type: none"> Adcock, J., & Cuvo, A. J. (2009). Enhancing learning for children with autism spectrum disorders in regular education by instructional modifications. <i>Research in Autism Spectrum Disorders</i>, 3(2), 319-328. https://doi.org/10.1016/j.rasd.2008.07.004 Ahearn, W. H. (2003). Using simultaneous presentation to increase vegetable consumption in a mildly selective child with autism. <i>Journal of Applied Behavior Analysis</i>, 36(3), 361-365. https://doi.org/10.1901/jaba.2003.36-361 							

3. Albert, K. M., Carbone, V. J., Murray, D. D., Hagerty, M., & Sweeney-Kerwin, E. J. (2012). Increasing the mand repertoire of children with autism through the use of an interrupted chain procedure. *Behavior Analysis in Practice, 5*(2), 65-76. <https://doi.org/10.1007/bf03391825>
4. Banda, D. R., McAfee, J. K., & Hart, S. L. (2012). Decreasing self-injurious behavior and fading self-restraint in a student with autism and Tourette syndrome. *Behavioral Interventions, 27*(3), 164-174. <https://doi.org/10.1002/bin.1344>
5. Barahona, C., DuBard, M., Luiselli, J. K., & Kesterson, J. (2013). School-based feeding intervention to increase variety and quantity of foods consumed by an adolescent with autism. *Clinical Practice in Pediatric Psychology, 1*(4), 361-368. <https://doi.org/10.1037/cpp0000035>
6. Butler, L. R., & Luiselli, J. K. (2007). Escape-maintained problem behavior in a child with autism antecedent functional analysis and intervention evaluation of noncontingent escape and instructional fading. *Journal of Positive Behavior Interventions, 9*(4), 195-202. <https://doi.org/10.1177/10983007070090040201>
7. Cale, S. I., Carr, E. G., Blakeley-Smith, A., & Owen-DeSchryver, J. S. (2009). Context-based assessment and intervention for problem behavior in children with autism spectrum disorder. *Behavior Modification, 33*(6), 707-742. <https://doi.org/10.1177/0145445509340775>
8. Clay, C. J., Clohisey, A. M., Ball, A. M., Haider, A. F., Schmitz, B. A., & Kahng, S. (2017). Further evaluation of presentation format of competing stimuli for treatment of automatically maintained challenging behavior. *Behavior Modification, 42*(3), 382-397. <https://doi.org/10.1177/0145445517740322>
9. Davis, T. N., Dacus, S., Strickland, E., Machalicek, W., & Coviello, L. (2013). Reduction of automatically maintained self-injurious behavior utilizing noncontingent matched stimuli. *Developmental Neurorehabilitation, 16*(3), 166-171. <https://doi.org/10.3109/17518423.2013.766819>
10. Delemere, E., & Dounavi, K. (2017). Parent-implemented bedtime fading and positive routines for children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 48*, 1002-1019. <https://doi.org/10.1007/s10803-017-3398-4>
11. Dudley, L. L., Johnson, C., & Barnes, R. S. (2002). Decreasing rumination using a starchy food satiation procedure. *Behavioral Interventions, 17*(1), 21-29. <https://doi.org/10.1002/bin.104>
12. Dunlap, G., & Plienis, A. J. (1991). The influence of task size on the unsupervised task performance of students with developmental disabilities. *Education and Treatment of Children, 14*(2), 85-95.
13. Dyer, K., Dunlap, G., & Winterling, V. (1990). Effects of choice making on the serious problem behaviors of students with severe handicaps. *Journal of Applied Behavior Analysis, 23*(4), 515-524. <https://doi.org/10.1901/jaba.1990.23-515>
14. Eilers, H. J., & Hayes, S. C. (2015). Exposure and response prevention therapy with cognitive defusion exercises to reduce repetitive and restrictive behaviors displayed by children with autism spectrum disorder. *Research in Autism Spectrum Disorders, 19*, 18-31. <https://doi.org/10.1016/j.rasd.2014.12.014>
15. Enloe, K. A., & Rapp, J. T. (2014). Effects of noncontingent social interaction on immediate and subsequent engagement in vocal and motor stereotypy in children with autism. *Behavior Modification, 38*(3), 374-391. <https://doi.org/10.1177/0145445513514081>
16. Graff, R. B., & Green, G. (2004). Two methods for teaching simple visual discriminations to learners with severe disabilities. *Research in Developmental Disabilities, 25*(3), 295-307. <https://doi.org/10.1016/j.ridd.2003.08.002>
17. Hagopian, L. P., & Toole, L. M. (2009). Effects of response blocking and competing stimuli on stereotypic behavior. *Behavioral Interventions, 24*(2), 117-125. <https://doi.org/10.1002/bin.278>
18. Haley, J. L., Heick, P. F., & Luiselli, J. K. (2010). Use of an antecedent intervention to decrease vocal stereotypy of a student with autism in the general education classroom. *Child & Family Behavior Therapy, 32*(4), 311-321. <https://doi.org/10.1080/07317107.2010.515527>
19. Isong, I. A., Rao, S. R., Holifield, C., Iannuzzi, D., Hanson, E., Ware, J., & Nelson, L. P. (2014). Addressing dental fear in children with autism spectrum disorders: A randomized controlled pilot study using electronic screen media. *Clinical Pediatrics, 53*(3), 230-237. <https://doi.org/10.1177/0009922813517169>
20. Jocelyn, L. J., Casiro, O. G., Beattie, D., Bow, J., & Kneisz, J. (1998). Treatment of children with autism: A randomized controlled trial to evaluate a caregiver-based intervention program in community day-care centers. *Journal of Developmental & Behavioral Pediatrics, 19*(5), 326-334. <https://doi.org/10.1097/00004703-199810000-00002>
21. Jung, S., & Sainato, D. M. (2015). Teaching games to young children with autism spectrum disorder using special interests and video modeling. *Journal of Intellectual and Developmental Disability, 40*(2), 198-212. <https://doi.org/10.3109/13668250.2015.1027674>
22. Kelly, A. N., Axe, J. B., Allen, R. F., & Maguire, R. W. (2015). Effects of pre-session pairing on the challenging behavior and academic responding of children with autism. *Behavioral Interventions, 30*(2), 135-156. <https://doi.org/10.1002/bin.1408>
23. Kennedy, C. H. (1994). Manipulating antecedent conditions to alter the stimulus control of problem behavior. *Journal of Applied Behavior Analysis, 27*(1), 161-170. <https://doi.org/10.1901/jaba.1994.27-161>
24. Kliebert, M. L., & Tiger, J. H. (2011). Direct and distal effects of noncontingent juice on rumination exhibited by a child with autism. *Journal of Applied Behavior Analysis, 44*(4), 955-959. <https://doi.org/10.1901/jaba.2011.44-955>
25. Koegel, L. K., Koegel, R. L., Frea, W., & Green-Hopkins, I. (2003). Priming as a method of coordinating educational services for students with autism. *Language, Speech, and Hearing Services in Schools, 34*(3), 228-235. [https://doi.org/10.1044/0161-1461\(2003/019\)](https://doi.org/10.1044/0161-1461(2003/019))
26. Kuo, N., & Plavnick, J. B. (2015). Using an antecedent art intervention to improve the behavior of a child with Autism. *Art Therapy, 32*(2), 54-59. <https://doi.org/10.1080/07421656.2015.1028312>
27. Ladd, M. V., Luiselli, J. K., & Baker, L. (2009). Continuous access to competing stimulation as intervention for self-injurious skin picking in a child with autism. *Child & Family Behavior Therapy, 31*(1), 54-60. <https://doi.org/10.1080/07317100802701400>
28. Lanovaz, M. J., Sladeczek, I. E., & Rapp, J. T. (2011). Effects of music on vocal stereotypy in children with autism. *Journal of Applied Behavior Analysis, 44*(3), 647-651. <https://doi.org/10.1901/jaba.2011.44-647>
29. LeBlanc, L. A., Carr, J. E., Crossett, S. E., Bennett, C. M., & Detweiler, D. D. (2005). Intensive outpatient behavioral treatment of primary urinary incontinence of children with autism. *Focus on Autism and Other Developmental Disabilities, 20*(2), 98-105. <https://doi.org/10.1177/10883576050200020601>

30. Mason, S. A., & Newsom, C. D. (1990). The application of sensory change to reduce stereotyped behavior. *Research in Developmental Disabilities, 11*(3), 257-271. [https://doi.org/10.1016/0891-4222\(90\)90012-W](https://doi.org/10.1016/0891-4222(90)90012-W)
31. O'Reilly, M., Fragale, C., Gaaney, S., Kang, S., Koch, H., Shubert, J., Zein, F. E., Longino, D., Chung, M., Xu, Z., White, P., Lang, R., Davis, T., Rispoli, M., Lancioni, G., Didden, R., Healy, O., Kagohara, D., van der Meer, L., & Sigafoos, J. (2012). Examination of an antecedent communication intervention to reduce tangibly maintained challenging behavior: A controlled analog analysis. *Research in Developmental Disabilities, 33*(5), 1462-1468. <https://doi.org/10.1016/j.ridd.2012.03.017>
32. Rakap, S., & Balikci, S. (2017). Using embedded instruction to teach functional skills to a preschool child with autism. *International Journal of Developmental Disabilities, 63*(1), 17-26. <https://doi.org/10.1080/20473869.2015.1109801>
33. Rapp, J. T., Vollmer, T. R., Peter, C., Dozier, C. L., & Cotnoir, N. M. (2004). Analysis of response allocation in individuals with multiple forms of stereotyped behavior. *Journal of Applied Behavior Analysis, 37*(4), 481-501. <https://doi.org/10.1901/jaba.2004.37-481>
34. Reinhartsen, D. B., Garfinkle, A. N., & Wolery, M. (2002). Engagement with toys in two-year-old children with autism: Teacher selection versus child choice. *Research and Practice for Persons with Severe Disabilities, 27*(3), 175-187. <https://doi.org/10.2511/rpsd.27.3.175>
35. Rispoli, M. J., O'Reilly, M. F., Sigafoos, J., Lang, R., Kang, S., Lancioni, G., & Parker, R. (2011). Effects of pre-session satiation on challenging behavior and academic engagement for children with autism during classroom instruction. *Education and Training in Autism and Developmental Disabilities, 46*(4), 607-618.
36. Rispoli, M., Lang, R., Neely, L., Camargo, S., Hutchins, N., Davenport, K., & Goodwyn, F. (2013). A comparison of within- and across-activity choices for reducing challenging behavior in children with autism spectrum disorders. *Journal of Behavioral Education, 22*(1), 66-83. <https://doi.org/10.1007/s10864-012-9164-y>
37. Rispoli, M., O'Reilly, M., Lang, R., Machalicek, W., Davis, T., Lancioni, G., & Sigafoos, J. (2011). Effects of motivating operations on problem and academic behavior in classrooms. *Journal of Applied Behavior Analysis, 44*(1), 187-192. <https://doi.org/10.1901/jaba.2011.44-187>
38. Roane, H. S., Kelly, M. L., & Fisher, W. W. (2003). The effects of noncontingent access to food on the rate of object mouthing across three settings. *Journal of Applied Behavior Analysis, 36*(4), 579-582. <https://doi.org/10.1901/jaba.2003.36-579>
39. Rosales, R., Worsdell, A., & Trahan, M. (2010). Comparison of methods for varying item presentation during noncontingent reinforcement. *Research in Autism Spectrum Disorders, 4*(3), 367-376. <https://doi.org/10.1016/j.rasd.2009.10.004>
40. Rosenberg, N., Congdon, M., Schwartz, I., & Ramps, D. (2015). Use of say-do correspondence training to increase generalization of social interaction skills at recess for children with Autism Spectrum Disorder. *Education and Training in Autism and Developmental Disabilities, 50*(2), 213-222.
41. Saylor, S., Sidener, T. M., Reeve, S. A., Fetherston, A., & Progar, P. R. (2012). Effects of three types of noncontingent auditory stimulation on vocal stereotypy in children with autism. *Journal of Applied Behavior Analysis, 45*(1), 185-190. <https://doi.org/10.1901/jaba.2012.45-185>
42. Sellers, T. P., Bloom, S. E., Samaha, A. L., Dayton, E., Lambert, J. M., & Keyl-Austin, A. A. (2013). Evaluation of some components of choice making. *Journal of Applied Behavior Analysis, 46*(2), 455-464. <https://doi.org/10.1002/jaba.46>
43. Sigafoos, J., Green, V. A., Payne, D., O'Reilly, M. F., & Lancioni, G. E. (2009). A classroom-based antecedent intervention reduces obsessive-repetitive behavior in an adolescent with autism. *Clinical Case Studies, 8*(1), 3-13. <https://doi.org/10.1177/1534650108327475>
44. Smith, C. E., Carr, E. G., & Moskowitz, L. J. (2016). Fatigue as a biological setting event for severe problem behavior in autism spectrum disorder. *Research in Autism Spectrum Disorders, 23*, 131-144. <https://doi.org/10.1016/j.rasd.2015.12.003>
45. Stichter, J. P., Randolph, J. K., Kay, D., & Gage, N. (2009). The use of structural analysis to develop antecedent-based interventions for students with autism. *Journal of Autism and Developmental Disorders, 39*(6), 883-896. <https://doi.org/10.1007/s10803-009-0693-8>
46. Taylor, B. A., Hoch, H., Potter, B., Rodriguez, A., Spinnato, D., & Kalaigian, M. (2005). Manipulating establishing operations to promote initiations toward peers in children with autism. *Research in Developmental Disabilities, 26*(4), 385-392. <https://doi.org/10.1016/j.ridd.2004.11.003>
47. Tiger, J. H., Fisher, W. W., Toussaint, K. A., & Kodak, T. (2009). Progressing from initially ambiguous functional analyses: Three case examples. *Research in Developmental Disabilities, 30*(5), 910-926. <https://doi.org/10.1016/j.ridd.2009.01.005>
48. Vasquez, S., Brewer, A., Leon, Y., & Vasquez, J. (2017). The effects of advance notice on problem behavior occasioned by interruptions of an ongoing activity in a young girl with autism. *Behavior Analysis in Practice, 10*(4), 417-421. <https://doi.org/10.1007/s40617-017-0187-7>
49. Walpole, C. W., Roscoe, E. M., & Dube, W. V. (2007). Use of a differential observing response to expand restricted stimulus control. *Journal of Applied Behavior Analysis, 40*(4), 707-712. <https://doi.org/10.1901/jaba.2007.707-712>

Name of EBP	Augmentative and Alternative Communication (AAC)
Definition of EBP	<p>Augmentative and Alternative Communication (AAC) interventions use and/or teach the use of a system of communication that is not verbal/vocal including aided and unaided communication systems. Unaided communication systems do not use any materials or technology (e.g., sign language and gestures). Aided communication systems include low tech systems (e.g., exchanging objects/pictures or pointing to letters) and extend to high tech speech generating devices (SGDs) and applications that allow other devices (i.e., phones, tablets) to serve as SGDs. Methods of teaching AAC use are also included in this category (e.g., Aided Language Modeling) which may include other EBPs such as prompting, reinforcement, visual supports, and peer-mediated interventions.</p> <ul style="list-style-type: none"> Manualized Interventions Meeting Criteria: Picture Exchange Communication System® (PECS®; Bondy and Frost, 1985).

		Age Ranges					
Outcome Areas		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓	✓	
	Social	✓	✓	✓		✓	
	Joint attention	✓	✓	✓			
	Play	✓	✓	✓			
	Cognitive						
	School readiness						
	Academic/ Pre-academic		✓	✓			
	Adaptive/ self-help						
	Challenging/ Interfering behavior		✓	✓			
	Vocational						
	Motor					✓	
	Mental health						
	Self-determination						





References

- Agius, M. M., & Vance, M. (2016). A comparison of PECS and iPad to teach requesting to pre-schoolers with autistic spectrum disorders. *Augmentative and Alternative Communication*, 32(1), 58-68. <https://doi.org/10.3109/07434618.2015.1108363>
- Ali, E., MacFarland, S. Z., & Umbreit, J. (2011). Effectiveness of combining tangible symbols with the Picture Exchange Communication System to teach requesting skills to children with multiple disabilities including visual impairment. *Education and Training in Autism and Developmental Disabilities*, 46(3), 425-435.
- Almirall, D., DiStefano, C., Chang, Y.-C., Shire, S., Kaiser, A., Lu, X., Nahum-Shani, I., Landa, R., Mathy, P., & Kasari, C. (2016). Longitudinal effects of adaptive interventions with a speech-generating device in minimally verbal children with ASD. *Journal of Clinical Child & Adolescent Psychology*, 45(4), 442-456. <https://doi.org/10.1080/15374416.2016.1138407>
- Alzrayer, N. M., Banda, D. R., & Koul, R. (2017). Teaching children with autism spectrum disorder and other developmental disabilities to perform multistep requesting using an iPad. *Augmentative and Alternative Communication*, 33(2), 65-76. <https://doi.org/10.1080/07434618.2017.1306881>

5. Angermeier, K., Schlosser, R. W., Luiselli, J. K., Harrington, C., & Carter, B. (2007). Effects of iconicity on requesting with the Picture Exchange Communication System in children with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 2(3), 430-446. <https://doi.org/10.1016/j.rasd.2007.09.004>
6. Barlow, K. E., Tiger, J. H., Slocum, S. K., & Miller, S. J. (2013). Comparing acquisition of exchange-based and signed mands with children with autism. *Analysis of Verbal Behavior*, 29, 59-69. <https://doi.org/10.1007/bf03393124>
7. Boesch, M. C., Wendt, O., Subramanian, A., & Hsu, N. (2013). Comparative efficacy of the Picture Exchange Communication System (PECS) versus a speech-generating device: Effects on requesting skills. *Research in Autism Spectrum Disorders*, 7(3), 480-493. <https://doi.org/10.1016/j.rasd.2012.12.002>
8. Brady, N. C., Storkel, H. L., Bushnell, P., Barker, R. M., Saunders, K., Daniels, D., & Fleming, K. (2015). Investigating a multimodal intervention for children with limited expressive vocabularies associated with autism. *American Journal of Speech-Language Pathology*, 24(3), 438-459. https://doi.org/10.1044/2015_ajslp-14-0093
9. Carnett, A., Bravo, A., & Waddington, H. (2017). Teaching mands for actions to children with autism spectrum disorder using systematic instruction, behavior chain interruption, and a speech-generating device. *International Journal of Developmental Disabilities*, 65(2), 98-107. <https://doi.org/10.1080/20473869.2017.1412561>
10. Carr, D., & Felce, J. (2007). The effects of PECS teaching to phase III on the communicative interactions between children with autism and their teachers. *Journal of Autism and Developmental Disorders*, 37(4), 724-737. <https://doi.org/10.1007/s10803-006-0203-1>
11. Chang, Y.-C., Shih, W., Landa, R., Kaiser, A., & Kasari, C. (2018). Symbolic play in school-aged minimally verbal children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 48(5), 1436-1445. <https://doi.org/10.1007/s10803-017-3388-6>
12. Choi, H., O'Reilly, M., Sigafoos, J., & Lancioni, G. (2010). Teaching requesting and rejecting sequences to four children with developmental disabilities using augmentative and alternative communication. *Research in Developmental Disabilities*, 31(2), 560-567. <https://doi.org/10.1016/j.rasd.2010.08.005>
13. Conallen, K., & Reed, P. (2012). The effects of a conversation prompt procedure on independent play. *Research in Autism Spectrum Disorders*, 6(1), 365-377. <https://doi.org/10.1016/j.rasd.2011.06.010>
14. Cook, J. L., Rapp, J. T., Burji, C., McHugh, C., & Nuta, R. (2017). A simple intervention for stereotypical engagement with an augmentative alternative communicative device. *Behavioral Interventions*, 32(3), 272-277. <https://doi.org/10.1002/bin.1478>
15. Dogoe, M. S., Banda, D. R., & Lock, R. H. (2010). Acquisition and generalization of the picture exchange communication system behaviors across settings, persons, and stimulus classes with three students with autism. *Education and Training in Autism and Developmental Disabilities*, 45(2), 216-229.
16. Drager, K. D., Postal, V. J., Carrolus, L., Castellano, M., Gagliano, C., & Glynn, J. (2006). The effect of aided language modeling on symbol comprehension and production in 2 preschoolers with autism. *American Journal of Speech-Language Pathology*, 15(2), 112-125. [https://doi.org/10.1044/1058-0360\(2006/012\)](https://doi.org/10.1044/1058-0360(2006/012))
17. Ganz, J. B., Goodwyn, F. D., Boles, M. M., Hong, E. R., Rispoli, M. J., Lund, E. M., & Kite, E. (2013). Impacts of a PECS instructional coaching intervention on practitioners and children with autism. *Augmentative and Alternative Communication*, 29(3), 210-221. <https://doi.org/10.3109/07434618.2013.818058>
18. Ganz, J. B., Hong, E., Gilliland, W., Morin, K., & Svenkerud, N. (2015). Comparison between visual scene displays and exchange-based communication in augmentative and alternative communication for children with ASD. *Research in Autism Spectrum Disorders*, 11, 27-41. <https://doi.org/10.1016/j.rasd.2014.11.005>
19. Ganz, J. B., Hong, E., & Goodwyn, F. D. (2013). Effectiveness of the PECS phase III app and choice between the app and traditional PECS among preschoolers with ASD. *Research in Autism Spectrum Disorders*, 7(8), 973-983. <https://doi.org/10.1016/j.rasd.2013.04.003>
20. Genc-Tosun, D., & Kurt, O. (2017). Teaching multi-step requesting to children with autism spectrum disorder using systematic instruction and a speech-generating device. *Augmentative and Alternative Communication*, 33(4), 213-223. <https://doi.org/10.1080/07434618.2017.1378717>
21. Gevarter, C., O'Reilly, M. F., Rojeski, L., Sammarco, N., Sigafoos, J., Lancioni, G. E., & Lang, R. (2014). Comparing acquisition of AAC-based mands in three young children with autism spectrum disorder using iPad applications with different display and design elements. *Journal of Autism and Developmental Disorders*, 44(10), 2464-2474. <https://doi.org/10.1007/s10803-014-2115-9>
22. Greenberg, A. L., Tomaino, M. A. E., & Charlop, M. H. (2012). Assessing generalization of the Picture Exchange Communication System in children with autism. *Journal of Developmental and Physical Disabilities*, 24(6), 539-558. <https://doi.org/10.1007/s10882-012-9288-y>
23. Haq, S. S., Machalicek, W., Garbacz, S. A., & Drew, C. (2017). Employing a fixed-lean multiple schedule in the treatment of challenging behavior for children with autism spectrum disorder. *Behavior Modification*, 42(4), 610-633. <https://doi.org/10.1177/0145445517743206>
24. Howlin, P., Gordon, R. K., Pasco, G., Wade, A., & Charman, T. (2007). The effectiveness of Picture Exchange Communication System (PECS) training for teachers of children with autism: A pragmatic, group randomised controlled trial. *Journal of Child Psychology and Psychiatry*, 48(5), 473-481. <https://doi.org/10.1111/j.1469-7610.2006.01707.x>
25. Hughes, C., Bernstein, R. T., Kaplan, L. M., Reilly, C. M., Brigham, N. L., Cosgriff, J. C., & Boykin, M. P. (2013). Increasing conversational interactions between verbal high school students with autism and their peers without disabilities. *Focus on Autism and Other Developmental Disabilities*, 28(4), 241-254. <https://doi.org/10.1177/1088357613487019>
26. Jurgens, A., Anderson, A., & Moore, D. W. (2009). The effect of teaching PECS to a child with autism on verbal behaviour, play, and social functioning. *Behaviour Change*, 26(1), 66-81. <https://doi.org/10.1375/beck.26.1.66>
27. Kagohara, D. M., van der Meer, L., Achmadi, D., Green, V. A., O'Reilly, M. F., Mulloy, A., Lancioni, G. E., Lang, R., & Sigafoos, J. (2010). Behavioral intervention promotes successful use of an iPod-based communication device by an adolescent with autism. *Clinical Case Studies*, 9(5), 328-338. <https://doi.org/10.1177/1534650110379633>

28. Kasari, C., Kaiser, A., Goods, K., Nietfeld, J., Mathy, P., Landa, R., Murphy, S., & Almirall, D. (2014). Communication interventions for minimally verbal children with autism: Sequential multiple assignment randomized trial. *Journal of the American Academy of Child & Adolescent Psychiatry*, 53(6), 635-646. <https://doi.org/10.1016/j.jaac.2014.01.019>.
29. King, M. L., Takeguchi, K., Barry, S. E., Rehfeldt, R. A., Boyer, V. E., & Mathews, T. L. (2014). Evaluation of the iPad in the acquisition of requesting skills for children with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 8(9), 1107-1120. <https://doi.org/10.1016/j.rasd.2014.05.011>
30. Kodak, T., Paden, A., & Dickes, N. (2012). Training and generalization of peer-directed mands with non-vocal children with autism. *The Analysis of Verbal Behavior*, 28(1), 119-124. <https://doi.org/>
31. *Lerna, A., Esposito, D., Conson, M., & Massagli, A. (2014). Long-term effects of PECS on social-communicative skills of children with autism spectrum disorders: A follow-up study. *International Journal of Language & Communication Disorders*, 49(4), 478-485. <https://doi.org/10.1111/1460-6984.12079>
32. Lerna, A., Esposito, D., Conson, M., Russo, L., & Massagli, A. (2012). Social-communicative effects of the Picture Exchange Communication System (PECS) in autism spectrum disorders. *International Journal of Language & Communication Disorders*, 47(5), 609-617. <https://doi.org/10.1111/j.1460-6984.2012.00172.x>
33. Lorah, E. R. (2016). Comparing teacher and student use and preference of two methods of augmentative and alternative communication: Picture exchange and a speech-generating device. *Journal of Developmental and Physical Disabilities*, 28(5), 751-767. <https://doi.org/10.1007/s10882-016-9507-z>
34. Lorah, E. R., Karnes, A., & Speight, D. R. (2015). The acquisition of intraverbal responding using a speech generating device in school aged children with autism. *Journal of Developmental and Physical Disabilities*, 27(4), 557-568. <https://doi.org/10.1007/s10882-015-9436-2>
35. Lorah, E., & Parnell, A. (2017). Acquisition of tacting using a speech-generating device in group learning environments for preschoolers with autism. *Journal of Developmental & Physical Disabilities*, 29(4), 597-609. <https://doi.org/10.1007/s10882-017-9543-3>
36. Lorah, E. R., Parnell, A., & Speight, D. R. (2014). Acquisition of sentence frame discrimination using the iPad as a speech generating device in young children with developmental disabilities. *Research in Autism Spectrum Disorders*, 8(12), 1734-1740. <https://doi.org/10.1016/j.rasd.2014.09.004>
37. Lorah, E., Tincani, M., Dodge, J., Gilroy, S., Hickey, A., & Hantula, D. (2013). Evaluating picture exchange and the iPad as a speech generating device to teach communication to young children with Autism. *Journal of Developmental & Physical Disabilities*, 25(6), 637-649. <https://doi.org/10.1007/s10882-013-9337-1>
38. Mancil, G. Richmond, L., Elizabeth R., & Whitby, P. S. (2016). Effects of iPod touch technology as communication devices on peer social interactions across environments. *Education and Training in Autism and Developmental Disabilities*, 51(3), 252-264.
39. McDuffie, A. S., Lieberman, R. G., & Yoder, P. J. (2012). Object interest in autism spectrum disorder: A treatment comparison. *Autism*, 16(4), 398-405. <https://doi.org/10.1177/1362361309360983>
40. McLay, L., Schafer, M. C. M., van der Meer, L., Couper, L., McKenzie, E., O'Reilly, Mark F., Lancioni, G. E., Marschik, P. B., Sigafoos, J., & Sutherland, D. (2017). Acquisition, preference and follow-up comparison across three AAC modalities taught to two children with autism spectrum disorder. *International Journal of Disability, Development & Education*, 64(2), 117-130. <https://doi.org/10.1080/1034912X.2016.1188892>
41. McLay, L., van der Meer, L., Schafer, M. C. M., Couper, L., McKenzie, E., O'Reilly, M. F., Lancioni, G. E., Marschik, P. B., Green, V. A., Sigafoos, J., & Sutherland, D. (2015). Comparing acquisition, generalization, maintenance, and preference across three AAC options in four children with autism spectrum disorder. *Journal of Developmental and Physical Disabilities*, 27(3), 323-339. <https://doi.org/10.1007/s10882-014-9417-x>
42. Smith, J., Hand, L., & Dowrick, P. W. (2014). Video feedforward for rapid learning of a picture-based communication system. *Journal of Autism and Developmental Disorders*, 44(4), 926-936. <https://doi.org/10.1007/s10803-013-1946-0>
43. Still, K., May, R. J., Rehfeldt, R. A., Whelan, R., & Dymond, S. (2015). Facilitating derived requesting skills with a touchscreen tablet computer for children with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 19, 44-58. <https://doi.org/10.1016/j.rasd.2015.04.006>
44. Strasberger, S. K., & Ferreri, S. J. (2014). The effects of peer assisted communication application training on the communicative and social behaviors of children with autism. *Journal of Developmental and Physical Disabilities*, 26(5), 513-526. <https://doi.org/10.1007/s10882-013-9358-9>
45. Thiemann-Bourque, K., Brady, N., McGuff, S., Stump, K., & Naylor, A. (2016). Picture exchange communication system and pals: A peer-mediated augmentative and alternative communication intervention for minimally verbal preschoolers with autism. *Journal of Speech, Language, and Hearing Research*, 59(5), 1133-1145. https://doi.org/10.1044/2016_jslhr-l-15-0313
46. Thiemann-Bourque, K. S., McGuff, S., & Goldstein, H. (2017). Training peer partners to use a speech-generating device with classmates with autism spectrum disorder: Exploring communication outcomes across preschool contexts. *Journal of Speech Language and Hearing Research*, 60(9), 2648-2662. https://doi.org/10.1044/2017_JSLHR-L-17-0049
47. van der Meer, L., Kagohara, D., Achmadi, D., O'Reilly, M. F., Lancioni, G. E., Sutherland, D., & Sigafoos, J. (2012). Speech-generating devices versus manual signing for children with developmental disabilities. *Research in Developmental Disabilities*, 33(5), 1658-1669. <https://doi.org/10.1016/j.ridd.2012.04.004>

* indicates articles that are either secondary data analysis or follow-up for an article already included in the list

Name of EBP		Behavioral Momentum Intervention (BMI)					
Definition of EBP		Behavioral Momentum Intervention (BMI) is a strategy in which the task presentation is modified so that those requiring less effortful responses (i.e., high probability response sequences) occur before those requiring more difficult responses (i.e., low probability response sequences). This is done so that learners will receive reinforcement earlier and will be more likely to remain engaged and persist with the more challenging tasks or requests that follow. BMI can be used in academic, social, communication, and behavioral domains. In addition to reinforcement, BMI strategies are often used in conjunction with other evidence-based practices such as antecedent-based interventions and prompting.					
Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓			
	Social		✓	✓			
	Joint attention						
	Play		✓	✓			
	Cognitive						
	School readiness		✓	✓	✓		
	Academic/ Pre-academic			✓			
	Adaptive/ self-help		✓	✓		✓	
	Challenging/ Interfering behavior		✓	✓	✓		
	Vocational						
	Motor						
	Mental health						
	Self-determination						

References

1. Banda, D. R., & Kubina, R. M. (2006). The effects of a high-probability request sequencing technique in enhancing transition behaviors. *Education and Treatment of Children, 29*(3), 507-516.
2. Davis, C. A., Brady, M. P., Williams, R. E., & Hamilton, R. (1992). Effects of high-probability requests on the acquisition and generalization of responses to requests in young children with behavior disorders. *Journal of Applied Behavior Analysis, 25*(4), 905-916. <https://doi.org/10.1901/jaba.1992.25-905>
3. Ducharme, J. M., Lucas, H., & Pontes, E. (1994). Errorless embedding in the reduction of severe maladaptive behavior during interactive and learning tasks. *Behavior Therapy, 25*(3), 489-501. [https://doi.org/10.1016/S0005-7894\(05\)80159-5](https://doi.org/10.1016/S0005-7894(05)80159-5)
4. Esch, K., & Fryling, M. J. (2013). A comparison of two variations of the high-probability instructional sequence with a child with autism. *Education & Treatment of Children, 36*(1), 61-72. <https://doi.org/10.1353/etc.2013.0008>
5. Ewry, D. M., & Fryling, M. J. (2016). Evaluating the high-probability instructional sequence to increase the acceptance of foods with an adolescent with autism. *Behavior Analysis in Practice, 9*(4), 380-383. <https://doi.org/10.1007/s40617-015-0098-4>
6. Houlihan, D., Jacobson, L., & Brandon, P. K. (1994). Replication of a high-probability request sequence with varied interprompt times in a pre-school setting. *Journal of Applied Behavior Analysis, 27*(4), 737-738. <https://doi.org/10.1901/jaba.1994.27-737>

7. Jung, S., Sainato, D. M., & Davis, C. A. (2008). Using high-probability request sequences to increase social interactions in young children with autism. *Journal of Early Intervention, 30*(3), 163-187. <https://doi.org/10.1177/1053815108317970>
8. Kelly, L., & Holloway, J. (2015). An investigation of the effectiveness of Behavioral Momentum on the acquisition and fluency outcomes of tacts in three children with Autism Spectrum Disorder. *Research in Autism Spectrum Disorders, 9*, 182-192. <https://doi.org/10.1016/j.rasd.2014.10.007>
9. Patel, M., Reed, G. K., Piazza, C. C., Mueller, M., Bachmeyer, M. H., & Layer, S. A. (2007). Use of a high-probability instructional sequence to increase compliance to feeding demands in the absence of escape extinction. *Behavioral Interventions, 22*(4), 305-310. <https://doi.org/10.1002/bin.251>
10. Pitts, L., & Dymond, S. (2012). Increasing compliance of children with autism: Effects of programmed reinforcement for high-probability requests and varied inter-instruction intervals. *Research in Autism Spectrum Disorders, 6*(1), 135-143. <https://doi.org/10.1016/j.rasd.2011.03.013>
11. Riviere, V., Becquet, M., Peltret, E., Facon, B., & Darcheville, J. C. (2011). Increasing compliance with medical examination requests directed to children with autism: Effects of a high-probability request procedure. *Journal of Applied Behavior Analysis, 44*(1), 193-197. <https://doi.org/10.1901/jaba.2011.44-193>
12. Romano, J. P., & Roll, D. (2000). Expanding the utility of behavioral momentum for youth with developmental disabilities. *Behavioral Interventions, 15*(2), 99-111. [https://doi.org/10.1002/\(SICI\)1099-078X\(200004/06\)15:23.O.CO;2-K](https://doi.org/10.1002/(SICI)1099-078X(200004/06)15:23.O.CO;2-K)

Name of EBP	Cognitive Behavioral/Instructional Strategies (CBIS)
Definition of EBP	Cognitive Behavioral/Instructional Strategy (CBIS) interventions are based on the belief that learning and behavior are mediated by cognitive processes. Learners are taught to examine their own thoughts and emotions and then use step-by-step strategies to change their thinking, behavior, and self-awareness. These interventions can be used with learners who display problem behavior related to specific emotions or feelings, such as anger or anxiety (e.g., Cognitive Behavioral Therapy). These interventions can also be used to support learners in acquiring social and academic skills through explicit learning strategy instruction. CBIS interventions are often used in conjunction with other evidence-based practices including modeling, visual supports, prompting, reinforcement, social narratives, peer-based instruction and interventions and parent-implemented interventions.

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication			✓	✓	✓	
	Social			✓	✓	✓	✓
	Joint attention						
	Play						
	Cognitive			✓	✓		
	School readiness			✓	✓	✓	
	Academic/ Pre-academic			✓	✓	✓	✓
	Adaptive/ self-help			✓	✓	✓	✓
	Challenging/ Interfering behavior			✓	✓	✓	
	Vocational						
	Motor						
	Mental health			✓	✓	✓	
	Self-determination			✓	✓		


References

- Andrews, L., Attwood, T., & Sofronoff, K. (2013). Increasing the appropriate demonstration of affectionate behavior, in children with Asperger syndrome, high functioning autism, and PDD-NOS: A randomized controlled trial. *Research in Autism Spectrum Disorders*, 7(12), 1568-1578. <https://doi.org/10.1016/j.rasd.2013.09.010>
- Asaro-Saddler, K. (2014). Self-regulated strategy development: Effects on writers with autism spectrum disorders. *Education and Training in Autism and Developmental Disabilities*, 49(1), 78-91.
- Asaro-Saddler, K., & Bak, N. (2012). Teaching children with high-functioning autism spectrum disorders to write persuasive essays. *Topics in Language Disorders*, 32(4), 361-378. <https://doi.org/10.1097/TLD.0b013e318271813f>
- Asaro-Saddler, K., & Bak, N. (2014). Persuasive writing and self-regulation training for writers with autism spectrum disorders. *The Journal of Special Education*, 48(2), 92-105. <https://doi.org/10.1177/0022466912474101>
- Carnahan, C. R., & Williamson, P. S. (2013). Does compare-contrast text structure help students with autism spectrum disorder comprehend science text? *Exceptional Children*, 79(3), 347-363. <https://doi.org/10.1177/001440291307900302>

6. Carnahan, C. R., Williamson, P., Birri, N., Swoboda, C., & Snyder, K. K. (2016). Increasing comprehension of expository science text for students with autism spectrum disorder. *Focus on Autism and Other Developmental Disabilities, 31*(3), 208-220. <https://doi.org/10.1177/1088357615610539>
7. Chung, U. S., Han, D. H., Shin, Y. J., & Renshaw, P. F. (2016). A prosocial online game for social cognition training in adolescents with high-functioning autism: An fMRI study. *Neuropsychiatric Disease and Treatment, 12*, 651-660. <https://doi.org/10.2147/ndt.s94669>
8. Clarke, C., Hill, V., & Charman, T. (2017). School based cognitive behavioural therapy targeting anxiety in children with autistic spectrum disorder: A quasi-experimental randomised controlled trial incorporating a mixed methods approach. *Journal of Autism and Developmental Disorders, 47*(12), 3883-3895. <https://doi.org/10.1007/s10803-016-2801-x>
9. Costescu, C. A., Vanderborght, B., & David, D. O. (2017). Robot-enhanced CBT for dysfunctional emotions in social situations for children with ASD. *Journal of Evidence-Based Psychotherapies, 17*(2), 119-132. <https://doi.org/10.24193/jebp.2017.2.7>
10. Delano, M. E. (2007). Use of strategy instruction to improve the story writing skills of a student with Asperger syndrome. *Focus on Autism and Other Developmental Disabilities, 22*(4), 252-258. <https://doi.org/10.1177/10883576070220040701>
11. Drahota, A., Wood, J. J., Sze, K. M., & Van Dyke, M. (2011). Effects of cognitive behavioral therapy on daily living skills in children with high-functioning autism and concurrent anxiety disorders. *Journal of Autism and Developmental Disorders, 41*(3), 257-265. <https://doi.org/10.1007/s10803-010-1037-4>
12. Freitag, C.M., Jensen, K., Elsuni, L., Sachse, M., Herpertz-Dahlmann, B., Schulte-Ruther, M., Hanig, S., Gontard, A., Poustka, L., Schad-Hansjosten, T., Wenzl, C., Sinzig, J., Taurines, R., Geissler, J., Kieser, M., & Cholemkery, H. (2016). Group-based cognitive behavioural psychotherapy for children and adolescents with ASD: The randomized, multicentre, controlled SOSTA - net trial. *Journal of Child Psychology and Psychiatry, 57*(5), 596-605. <https://doi.org/10.1111/jcpp.12509>
13. Gillam, S. L., Hartzheim, D., Studenka, B., Simonsmeier, V., & Gillam, R. (2015). Narrative intervention for children with autism spectrum disorder (ASD). *Journal of Speech, Language, and Hearing Research, 58*(3), 920-933. https://doi.org/10.1044/2015_jslhr-1-14-0295
14. Gordon, K., Murin, M., Baykaner, O., Roughtan, L., Livermore-Hardy, V., Skuse, D., & Mandy, W. (2015). A randomised controlled trial of PEGA-SUS, a psychoeducational programme for young people with high-functioning autism spectrum disorder. *Journal of Child Psychology and Psychiatry, 56*(4), 468-476. <https://doi.org/10.1111/jcpp.12304>
15. Howorth, S., Lopata, C., Thomeer, M., & Rodgers, J. (2016). Effects of the TWA strategy on expository reading comprehension of students with autism. *British Journal of Special Education, 43*(1), 39-59. <https://doi.org/10.1111/1467-8578.12122>
16. Hua, Y., Hendrickson, J. M., Therrien, W. J., Woods-Groves, S., Ries, P. S., & Shaw, J. J. (2012). Effects of combined reading and question generation on reading fluency and comprehension of three young adults with autism and intellectual disability. *Focus on Autism and Other Developmental Disabilities, 27*(3), 135-146. <https://doi.org/10.1177/1088357612448421>
17. Hua, Y., Morgan, B.S.T., Kaldenberg, E.R., & Goo, M. (2012). Cognitive strategy instruction for functional mathematical skill: Effects for young adults with intellectual disability. *Education and Training in Autism and Developmental Disabilities, 47*(3), 345-358.
18. Jackson, L. G., Duffy, M. L., Brady, M. P., & McCormick, J. (2017). Effects of learning strategy training on the writing performance of college students with asperger's syndrome. *Journal of Autism and Developmental Disorders, 48*(3), 708-721. <https://doi.org/10.1007/s10803-017-3170-9>
19. Jimenez, B. A., Lo, Y., & Saunders, A. F. (2014). The additive effects of scripted lessons plus guided notes on science quiz scores of students with intellectual disability and autism. *The Journal of Special Education, 47*(4), 231-244. <https://doi.org/10.1177/0022466912437937>
20. Kenworthy, L., Anthony, L. G., Naiman, D. Q., Cannon, L., Wills, M. C., Luong-Tran, C., Werner, M. A., Alexander, K. C., Strang, J., Bal, E., Sokoloff, J. L., & Wallace, G. L. (2014). Randomized controlled effectiveness trial of executive function intervention for children on the autism spectrum. *Journal of Child Psychology and Psychiatry, 55*(4), 374-383. <https://doi.org/10.1111/jcpp.12161>
21. Lopata, C., Thomeer, M. L., Lipinski, A. M., Donnelly, J. P., Nelson, A. T., Smith, R. A., Booth, A. J., Rodgers, J. D., & Volker, M. A. (2015). RCT examining the effect of treatment intensity for a psychosocial treatment for high-functioning children with ASD. *Research in Autism Spectrum Disorders, 17*, 52-63. <https://doi.org/10.1016/j.rasd.2015.06.002>
22. Lopata, C., Thomeer, M. L., Rodgers, J. D., Donnelly, J. P., & McDonald, C. A. (2016). RCT of mind reading as a component of a psychosocial treatment for high-functioning children with ASD. *Research in Autism Spectrum Disorders, 21*, 25-36. <https://doi.org/10.1016/j.rasd.2015.09.003>
23. Luxford, S., Hadwin, J. A., & Kovshoff, H. (2017). Evaluating the effectiveness of a school-based cognitive behavioural therapy intervention for anxiety in adolescents diagnosed with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 47*(12), 3896-3908. <https://doi.org/10.1007/s10803-016-2857-7>
24. Mackay, B. A., Shochet, I. M., & Orr, J. A. (2017). A pilot randomised controlled trial of a school-based resilience intervention to prevent depressive symptoms for young adolescents with autism spectrum disorder: A mixed methods analysis. *Journal of Autism and Developmental Disorders, 47*(11), 3458-3478. <https://doi.org/10.1007/s10803-017-3263-5>
25. Maddox, B. B., Miyazaki, Y., & White, S. W. (2017). Long-term effects of CBT on social impairment in adolescents with ASD. *Journal of Autism and Developmental Disorders, 47*(12), 3872-3882. <https://doi.org/10.1007/s10803-016-2779-4>
26. Maximo, J. O., Murdaugh, D. L., O'Kelley, S., & Kana, R. K. (2017). Changes in intrinsic local connectivity after reading intervention in children with autism. *Brain and Language, 175*, 11-17. <https://doi.org/10.1016/j.bandl.2017.08.008>
27. McConachie, H., McLaughlin, E., Grahame, V., Taylor, H., Honey, E., Tavornor, L., Rodgers, J., Freeston, M., Hemm, C., Steen, N., & Le Couteur, A. (2014). Group therapy for anxiety in children with autism spectrum disorder. *Autism, 18*(6), 723-732. <https://doi.org/10.1177/1362361313488839>
28. McNally Keehn, R. H., Lincoln, A. J., Brown, M. Z., & Chavira, D. A. (2013). The Coping Cat program for children with anxiety and autism spectrum disorder: A pilot randomized controlled trial. *Journal of Autism and Developmental Disorders, 43*(1), 57-67. <https://doi.org/10.1007/s10803-012-1541-9>
29. Melogno, S., Pinto, M. A., & Di Filippo, G. (2017). Sensory and physico-psychological metaphor comprehension in children with ASD: A preliminary study on the outcomes of a treatment. *Brain Sciences, 7*(7), 1-13. <https://doi.org/10.3390/brainsci7070085>
30. Murdaugh, D. L., Deshpande, H. D., & Kana, R. K. (2016). The impact of reading intervention on brain responses underlying language in children with autism. *Autism Research, 9*(1), 141-154. <https://doi.org/10.1002/aur.1503>

31. Murdaugh, D. L., Maximo, J. O., Cordes, C. E., O'Kelley, S. E., & Kana, R. K. (2017). From word reading to multisentence comprehension: Improvements in brain activity in children with autism after reading intervention. *Neuroimage-Clinical*, *16*, 303-312. <https://doi.org/10.1016/j.nicl.2017.08.012>
32. Reaven, J., Blakeley-Smith, A., Culhane-Shelburne, K., & Hepburn, S. (2012). Group cognitive behavior therapy for children with high-functioning autism spectrum disorders and anxiety: A randomized trial. *Journal of Child Psychology and Psychiatry*, *53*(4), 410-419.
33. Rockwell, S. B., Griffin, C. C., & Jones, H. A. (2011). Schema-based strategy instruction in mathematics and the word problem-solving performance of a student with autism. *Focus on Autism and Other Developmental Disabilities*, *26*(2), 87-95. <https://doi.org/10.1177/1088357611405039>
34. Rodgers, Jonathan D., Thomeer, Marcus L., Lopata, Christopher, Volker, Martin A., Lee, Gloria K., McDonald, Christin A., Smith, Rachael A., Biscotto, & Alyssa A. (2015). RCT of a psychosocial treatment for children with high-functioning ASD: Supplemental analyses of treatment effects on facial emotion encoding. *Journal of Developmental and Physical Disabilities*, *27*(2), 207-221. <https://doi.org/10.1007/s10882-014-9409-x>
35. Roux, C., Dion, E., Barrette, A., Dupéré, V., & Fuchs, D. (2015). Efficacy of an intervention to enhance reading comprehension of students with high-functioning autism spectrum disorder. *Remedial and Special Education*, *36*(3), 131-142. <https://doi.org/10.1177/0741932514533998>
36. Schneider, A. B., Codding, R. S., & Tryon, G. S. (2013). Comparing and combining accommodation and remediation interventions to improve the written-language performance of children with Asperger syndrome. *Focus on Autism and Other Developmental Disabilities*, *28*(2), 101-114. <https://doi.org/10.1177/1088357613475811>
37. Singh, N. N., Lancioni, G. E., Manikam, R., Winton, A. S., Singh, A. N., Singh, J., & Singh, A. D. (2011). A mindfulness-based strategy for self-management of aggressive behavior in adolescents with autism. *Research in Autism Spectrum Disorders*, *5*(3), 1153-1158. <https://doi.org/10.1016/j.rasd.2010.12.012>
38. Sofronoff, K., Attwood, T., & Hinton, S. (2005). A randomised controlled trial of a CBT intervention for anxiety in children with Asperger syndrome. *Journal of Child Psychology and Psychiatry*, *46*(11), 1152-1160. <https://doi.org/10.1111/j.1469-7610.2005.00411.x>
39. Sofronoff, K., Attwood, T., Hinton, S., & Levin, I. (2007). A randomized controlled trial of a cognitive behavioural intervention for anger management in children diagnosed with Asperger syndrome. *Journal of Autism and Developmental Disorders*, *37*(7), 1203-1214. <https://doi.org/10.1007/s10803-006-0262-3>
40. Songlee, D., Miller, S. P., Tincani, M., Sileo, N. M., & Perkins, P. G. (2008). Effects of test-taking strategy instruction on high-functioning adolescents with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities*, *23*(4), 217-228. <https://doi.org/10.1177/1088357608324714>
41. Soorya, L. V., Siper, P. M., Beck, T., Soffes, S., Halpern, D., Gorenstein, M., Kolevzon, A., Buxbaum, J., & Wang, A. T. (2015). Randomized comparative trial of a social cognitive skills group for children with autism spectrum disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *54*(3), 208-216. <https://doi.org/10.1016/j.jaac.2014.12.005>
42. Storch, E. A., Arnold, E. B., Lewin, A. B., Nadeau, J. M., Jones, A. M., De Nadai, A. S., Jane Mutch, P., Selles, R. R., Ung, D., & Murphy, T. K. (2013). The effect of cognitive-behavioral therapy versus treatment as usual for anxiety in children with autism spectrum disorders: a randomized, controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, *52*(2), 132-142.e2. <https://doi.org/10.1016/j.jaac.2012.11.007>
43. Storch, E. A., Lewin, A. B., Collier, A. B., Arnold, E., De Nadai, A. S., Dane, B. F., Nadeau, J. M., Mutch, P. J., & Murphy, T. K. (2015). A randomized controlled trial of cognitive-behavioral therapy versus treatment as usual for adolescents with autism spectrum disorders and comorbid anxiety. *Depression and Anxiety*, *32*(3), 174-181. <https://doi.org/10.1002/da.22332>
44. Thomeer, M. L., Lopata, C., Donnelly, J. P., Booth, A., Shanahan, A., Federiconi, V., McDonald, C. A., & Rodgers, J. D. (2016). Community effectiveness RCT of a comprehensive psychosocial treatment for high-functioning children with ASD. *Journal of Clinical Child and Adolescent Psychology* *48*(S1), S119-130. <https://doi.org/10.1080/15374416.2016.1247359>
45. Turner, H., Remington, A., & Hill, V. (2017). Developing an intervention to improve reading comprehension for children and young people with autism spectrum disorders. *Educational and Child Psychology*, *34*(2), 13-26. <https://doi.org/>
46. Vause, T., Neil, N., Jaksic, H., Jackiewicz, G., & Feldman, M. (2017). Preliminary randomized trial of function-based cognitive-behavioral therapy to treat obsessive compulsive behavior in children with autism spectrum disorder. *Focus on Autism Other Developmental Disabilities*, *32*(3), 218-228. <https://doi.org/10.1177/1088357615588517>
47. Visser, K., Greaves-Lord, K., Tick, N. T., Verhulst, F. C., Maras, A., & van der Vegt, E. J. M. (2017). A randomized controlled trial to examine the effects of the tackling teenage psychosexual training program for adolescents with autism spectrum disorder. *Journal of Child Psychology and Psychiatry*, *58*(7), 840-850. <https://doi.org/10.1111/jcpp.12709>
48. White, S. W., Ollendick, T., Albano, A. M., Oswald, D., Johnson, C., Southam-Gerow, M. A., Kim, I., & Scahill, L. (2013). Randomized controlled trial: Multimodal anxiety and social skill intervention for adolescents with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *43*(2), 382-394. <https://doi.org/10.1007/s10803-012-1577-x>
49. Wood, J. J., Ehrenreich-May, J., Alessandri, M., Fujii, C., Renno, P., Laugeson, E., Piacentini, J. C., De Nadai, A. S., Arnold, E., Lewin, A. B., Murphy, T. K., & Storch, E. A. (2015). Cognitive behavioral therapy for early adolescents with autism spectrum disorders and clinical anxiety: A randomized, controlled trial. *Behavior Therapy*, *46*(1), 7-19. <https://doi.org/10.1016/j.beth.2014.01.002>
50. Yikmis, Ahmet (2016). Effectiveness of the touch math technique in teaching basic addition to children with autism. *Educational Sciences: Theory and Practice*, *16*(3), 1005-1025. <https://doi.org/10.12738/estp.2016.3.2057>

Name of EBP	Differential Reinforcement of Alternative, Incompatible, or Other Behavior (DR)
Definition of EBP	Differential reinforcement of alternative, incompatible, or other behavior (DRA/I/O) is a systematic process that increases desirable behavior or the absence of an undesirable behavior by providing positive consequences for demonstration/non-demonstration of such behavior. Undesirable behaviors are those that interfere with the learner’s development, relationships, and health (e.g., disengagement, tantrums, aggression, self-injury). The learner is provided such consequence when: a) the learner is engaging in a specific desired behavior other than the undesirable behavior (DRA), b) the learner is engaging in a behavior that is physically impossible to do while exhibiting the undesirable behavior (DRI), or c) the learner is not engaging in the undesirable behavior (DRO). Differential reinforcement is often used with other evidence-based practices such as prompting to teach the learner behaviors that are more desirable or incompatible with interfering behavior.

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓		
	Social		✓	✓	✓		
	Joint attention			✓			
	Play		✓	✓			
	Cognitive						
	School readiness		✓	✓	✓		
	Academic/ Pre-academic		✓	✓			
	Adaptive/ self-help	✓	✓	✓		✓	
	Challenging/ Interfering behavior	✓	✓	✓	✓	✓	✓
	Vocational						
	Motor		✓	✓	✓		
	Mental health						
	Self-determination						

References

- Adelinis, J. D., Piazza, C. C., & Goh, H. L. (2001). Treatment of multiply controlled destructive behavior with food reinforcement. *Journal of Applied Behavior Analysis, 34*(1), 97-100. <https://doi.org/10.1901/jaba.2001.34-97>
- Allison, J., Wilder, D. A., Chong, I., Lugo, A., Pike, J., & Rudy, N. (2012). A comparison of differential reinforcement and noncontingent reinforcement to treat food selectivity in a child with autism. *Journal of Applied Behavior Analysis, 45*(3), 613-617. <https://doi.org/10.1901/jaba.2012.45-613>
- Bergstrom, R., Tarbox, J., & Gutshall, K. A. (2011). Behavioral intervention for domestic pet mistreatment in a young child with autism. *Research in Autism Spectrum Disorders, 5*(1), 218-221. <https://doi.org/10.1016/j.rasd.2010.04.002>
- Brogan, K. M., Rapp, J. T., Sennott, L. A., Cook, J. L., & Swinkels, E. (2017). Further analysis of the predictive effects of a free-operant competing stimulus assessment on stereotypy. *Behavior Modification, 42*(4), 543-583. <https://doi.org/10.1177/0145445517741476>

5. Bruhn, A. L., Balint-Langel, K., Troughton, L., Langan, S., Lodge, K., & Kortemeyer, S. (2015). Assessing and treating stereotypical behaviors in classrooms using a functional approach. *Behavioral Disorders, 41*(1), 21-37. <https://doi.org/10.17988/0198-7429-41.1.21>
6. Buckley, S. D., & Newchok, D. K. (2005). An evaluation of simultaneous presentation and differential reinforcement with response cost to reduce packing. *Journal of Applied Behavior Analysis, 38*(3), 405-409. <https://doi.org/10.1901/jaba.2005.71-04>
7. Call, N. A., Pabico, R. S., Findley, A. J., & Valentino, A. L. (2011). Differential reinforcement with and without blocking as treatment for elopement. *Journal of Applied Behavior Analysis, 44*(4), 903-907. <https://doi.org/10.1901/jaba.2011.44-903>
8. Charlop, M. H., Kurtz, P. F., & Milstein, J. P. (1992). Too much reinforcement, too little behavior: Assessing task interspersal procedures in conjunction with different reinforcement schedules with autistic children. *Journal of Applied Behavior Analysis, 25*(4), 795-808. <https://doi.org/10.1901/jaba.1992.25-795>
9. Charlop-Christy, M. H., & Haymes, L. K. (1996). Using obsessions as reinforcers with and without mild reductive procedures to decrease inappropriate behaviors of children with autism. *Journal of Autism and Developmental Disorders, 26*(5), 527-546. <https://doi.org/10.1007/BF02172274>
10. Chezan, L., Drasgow, E., Legg, J., & Hollborn, A. (2016). Effects of conditional discrimination training and choice opportunities on manding for two young children with Autism Spectrum Disorder and language delays. *Journal of Developmental and Physical Disabilities, 28*(4), 557-579. <https://doi.org/10.1007/s10882-016-9493-1>
11. Cook, J. L., Rapp, J. T., & Schulze, K. A. (2015). Differential negative reinforcement of other behavior to increase wearing of a medical bracelet. *Journal of Applied Behavior Analysis, 48*(4), 901-906. <https://doi.org/10.1002/jaba.228>
12. Dixon, M. R., Peach, J., Daar, J. H., & Penrod, C. (2017). Teaching complex verbal operants to children with autism and establishing generalization using the peak curriculum. *Journal of Applied Behavior Analysis, 50*(2), 317-331. <https://doi.org/10.1002/jaba.373>
13. Drasgow, E., Martin, C. A., Chezan, L. C., Wolfe, K., & Halle, J. W. (2016). Mand training: An examination of response-class structure in three children with autism and severe language delays. *Behavior Modification, 40*(3), 347-376. <https://doi.org/10.1177/0145445515613582>
14. Egan, P. J., Zlomke, L. C., & Bush, B. R. (1993). Utilizing functional assessment, behavioral consultation and videotape review of treatment to reduce aggression: A case study. *Special Services in the Schools, 7*(1), 27-37. https://doi.org/10.1300/J008v07n01_02
15. Falcomata, T. S., Muething, C. S., Roberts, G. J., Hamrick, J., & Shpall, C. (2016). Further evaluation of latency-based brief functional analysis methods: An evaluation of treatment utility. *Developmental Neurorehabilitation, 19*(2), 88-94. <https://doi.org/10.3109/17518423.2014.910281>
16. Fisher, W. W., Pawich, T. L., Dicks, N., Paden, A. R., & Toussaint, K. (2014). Increasing the saliency of behavior-consequence relations for children with autism who exhibit persistent errors. *Journal of Applied Behavior Analysis, 47*(4), 738-48. <https://doi.org/10.1002/jaba.172>
17. Ganz, J. B., Flores, M. M., & Lashley, E. E. (2011). Effects of a treatment package on imitated and spontaneous verbal requests in children with autism. *Education and Training in Autism and Developmental Disabilities, 46*(4), 596-606.
18. Hagopian, L. P., Kuhn, D. E., & Strother, G. E. (2009). Targeting social skills deficits in an adolescent with pervasive developmental disorder. *Journal of Applied Behavior Analysis, 42*(4), 907-911. <https://doi.org/10.1901/jaba.2009.42-907>
19. Hammond, J. L., Iwata, B. A., Fritz, J. N., & Dempsey, C. M. (2011). Evaluation of fixed momentary DRO schedules under signaled and unsignaled arrangements. *Journal of Applied Behavior Analysis, 44*(1), 69-81. <https://doi.org/10.1901/jaba.2011.44-69>
20. Healey, J. J., Ahearn, W. H., Graff, R. B., & Libby, M. E. (2001). Extended analysis and treatment of self-injurious behavior. *Behavioral Interventions, 16*(3), 181-195. <https://doi.org/10.1002/bin.91>
21. Jessel, J., Ingvarsson, E. T., Whipple, R., & Kirk, H. (2017). Increasing on-task behavior of an adolescent with autism using momentary differential reinforcement. *Behavioral Interventions, 32*(3), 248-254. <https://doi.org/10.1002/bin.1480>
22. Kelley, M. E., Shamlan, K., Lomas, J. E., & Pabico, R. S. (2011). Pre-assessment exposure to schedule-correlated stimuli affects choice responding for tasks. *Research in Developmental Disabilities, 32*(2), 527-531. <https://doi.org/10.1016/j.ridd.2010.12.029>
23. Kerth, D. M., Progar, P. R., & Morales, S. (2009). The effects of non-contingent self-restraint on self-injury. *Journal of Applied Research in Intellectual Disabilities, 22*(2), 187-193. <https://doi.org/10.1111/j.1468-3148.2008.00487.x>
24. Lambert, J. M., Clohisey, A. M., Barrows, S. B., & Houchins-Juarez, N. J. (2017). Compound-schedules approaches to noncompliance: Teaching children when to ask and when to work. *Journal of Behavioral Education, 26*(2), 201-220. <https://doi.org/10.1007/s10864-016-9260-5>
25. Lanovaz, M. J., Rapp, J. T., & Ferguson, S. (2013). Assessment and treatment of vocal stereotypy associated with television: a pilot study. *Journal of Applied Behavior Analysis, 46*(2), 544-548. <https://doi.org/10.1002/jaba.35>
26. Lanovaz, M. J., Rapp, J. T., Maciwi, I., Pregent-Pelletier, E., Dorion, C., Ferguson, S., & Saade, S. (2014). Effects of multiple interventions for reducing vocal stereotypy: Developing a sequential intervention model. *Research in Autism Spectrum Disorders, 8*(5), 529-545. <https://doi.org/10.1016/j.rasd.2014.01.009>
27. Laprime, A. P., & Dittrich, G. A. (2014). An evaluation of a treatment package consisting of discrimination training and differential reinforcement with response cost and a social story on vocal stereotypy for a preschooler with autism in a preschool classroom. *Education & Treatment of Children, 37*(3), 407-430. <https://doi.org/10.1353/etc.2014.0028>
28. Leaf, J. B., Oppenheim-Leaf, M. L., & Streff, T. (2012). The effects of the time-in procedure on decreasing aberrant behavior: A clinical case study. *Clinical Case Studies, 11*(2), 152-164. <https://doi.org/10.1177/1534650112443003>
29. Lee, R., McComas, J. J., & Jawor, J. (2002). The effects of differential and lag reinforcement schedules on varied verbal responding by individuals with autism. *Journal of Applied Behavior Analysis, 35*(4), 391-402. <https://doi.org/10.1901/jaba.2002.35-391>
30. Lustig, N. H., Ringdahl, J. E., Breznican, G., Romani, P., Scheib, M., & Vinquist, K. (2014). Evaluation and treatment of socially inappropriate stereotypy. *Journal of Developmental and Physical Disabilities, 26*(2), 225-235. <https://doi.org/10.1007/s10882-013-9357-x>
31. Marcus, A., Sinnott, B., Bradley, S., & Grey, I. (2010). Treatment of idiopathic toe-walking in children with autism using GaitSpot auditory speakers and simplified habit reversal. *Research in Autism Spectrum Disorders, 4*(2), 260-267. <https://doi.org/10.1016/j.rasd.2009.09.012>
32. Marcus, B. A., & Vollmer, T. R. (1996). Combining noncontingent reinforcement and differential reinforcement schedules as treatment for aberrant behavior. *Journal of Applied Behavior Analysis, 29*(1), 43-51. <https://doi.org/10.1901/jaba.1996.29-43>

33. McGinnis, A. A., Blakely, E. Q., Harvey, A. C., Hodges, A. C., & Rickards, J. B. (2013). The behavioral effects of a procedure used by pediatric occupational therapists. *Behavioral Interventions*, 28(1), 48-57. <https://doi.org/10.1002/bin.1355>
34. Najdowski, A. C., Wallace, M. D., Reagon, K., Penrod, B., Higbee, T. S., & Tarbox, J. (2010). Utilizing a home-based parent training approach in the treatment of food selectivity. *Behavioral Interventions*, 25(2), 89-107. <https://doi.org/10.1002/bin.298>
35. Napolitano, D. A., Smith, T., Zarcone, J. R., Goodkin, K., & McAdam, D. B. (2010). Increasing response diversity in children with autism. *Journal of Applied Behavior Analysis*, 43(2), 265-271. <https://doi.org/10.1901/jaba.2010.43-265>
36. Newman, B., Tuntigian, L., Ryan C. S., & Reinecke, D. R. (1997). Self-management of a DRO procedure by three students with autism. *Behavioral Interventions*, 12(3), 149-156. [https://doi.org/10.1002/\(SICI\)1099-078X\(199707\)12:3<149::AID-BRT173>3.0.CO;2-M](https://doi.org/10.1002/(SICI)1099-078X(199707)12:3<149::AID-BRT173>3.0.CO;2-M)
37. Ninci, J., Lang, R., Davenport, K., Lee, A., Garner, J., Moore, M., Boutot, A., Rispoli, M., & Lancioni, G. (2013). An analysis of the generalization and maintenance of eye contact taught during play. *Developmental Neurorehabilitation*, 16(5), 301-307. <https://doi.org/10.3109/17518423.2012.730557>
38. Paden, A. R., Kodak, T., Fisher, W. W., Gawley-Bullington, E. M., & Boussein, K. J. (2012). Teaching children with autism to engage in peer-directed mands using a picture exchange communication system. *Journal of Applied Behavior Analysis*, 45(2), 425-429. <https://doi.org/10.1901/jaba.2012.45-425>
39. Patel, M. R., Carr, J. E., Kim, C., Robles, A., & Eastridge, D. (2000). Functional analysis of aberrant behavior maintained by automatic reinforcement: Assessments of specific sensory reinforcers. *Research in Developmental Disabilities*, 21(5), 393-407. [https://doi.org/10.1016/S0891-4222\(00\)00051-2](https://doi.org/10.1016/S0891-4222(00)00051-2)
40. Persicke, A., Jackson, M., & Adams, A. (2014). Brief report: An evaluation of TAGteach components to decrease toe-walking in a 4-Year-Old Child with Autism. *Journal of Autism & Developmental Disorders*, 44, 965-968. <https://doi.org/10.1007/s10803-013-1934-4>
41. Piazza, C. C., Moes, D. R., & Fisher, W. W. (1996). Differential reinforcement of alternative behavior and demand fading in the treatment of escape-maintained destructive behavior. *Journal of Applied Behavior Analysis*, 29(4), 569-572. <https://doi.org/10.1901/jaba.1996.29-569>
42. Plavnick, J. B., Mariage, T., Englert, C. S., Constantine, K., Morin, L., & Skibbe, L. (2014). Promoting independence during computer assisted reading instruction for children with autism spectrum disorders. *Revista Mexicana de Analisis de la Conducta*, 40(2), 85-105. <https://doi.org/10.5514/rmac.v40.i2.63667>
43. Polick, A. S., Carr, J. E., & Hanney, N. M. (2012). A comparison of general and descriptive praise in teaching intraverbal behavior to children with autism. *Journal of Applied Behavior Analysis*, 45(3), 593-599. <https://doi.org/10.1901/jaba.2012.45-593>
44. Rapp, J. T., Cook, J. L., McHugh, C., & Mann, K. R. (2016). Decreasing stereotypy using NCR and DRO with functionally matched stimulation: Effects on targeted and non-targeted stereotypy. *Behavior Modification*, 41(1), 45-83. <https://doi.org/10.1177/0145445516652370>
45. Reed, G. K., Ringdahl, J. E., Wacker, D. P., Barretto, A., & Andelman, M. S. (2005). The effects of fixed-time and contingent schedules of negative reinforcement on compliance and aberrant behavior. *Research in Developmental Disabilities*, 26(3), 281-295. <https://doi.org/10.1016/j.ridd.2004.01.004>
46. Reeves, L. M., Umbreit, J., Ferro, J. B., & Liaupsin, C. J. (2017). The role of the replacement behavior in function-based intervention. *Education and Training in Autism and Developmental Disabilities*, 52(3), 305-316. <https://doi.org/10.2307/26420402>
47. Robertson, R. E., Wehby, J. H., & King, S. M. (2013). Increased parent reinforcement of spontaneous requests in children with autism spectrum disorder: effects on problem behavior. *Research in Developmental Disabilities*, 34(3), 1069-1082. <https://doi.org/10.1016/j.ridd.2012.12.011>
48. Rozenblat, E., Brown, J. L., Brown, A. K., Reeve, S. A., & Reeve, K. F. (2009). Effects of adjusting DRO schedules on the reduction of stereotypic vocalizations in children with autism. *Behavioral Interventions*, 24(1), 1-15. <https://doi.org/10.1002/bin.270>
49. Schmidt, J. D., Bednar, M. K., Willse, L. V., Goetzel, A. L., Concepcion, A., Pincus, S. M., Hardesty, S. L., & Bowman, L. G. (2017). Evaluating treatments for functionally equivalent problem behavior maintained by adult compliance with mands during interactive play. *Journal of Behavioral Education*, 26(2), 169-187. <https://doi.org/10.1007/s10864-016-9264-1>
50. Schmidt, J. D., Long, A., Goetzel, A. L., Tung, C., Pizarro, E., Phillips, C., & Hausman, N. (2017). Decreasing pica attempts by manipulating the environment to support prosocial behavior. *Journal of Developmental and Physical Disability*, 29(5), 683-697. <https://doi.org/10.1007/s10882-017-9548-y>
51. Shabani, D. B., & Fisher, W. W. (2006). Stimulus fading and differential reinforcement for the treatment of needle phobia in a youth with autism. *Journal of Applied Behavior Analysis*, 39(4), 449-452. <https://doi.org/10.1901/jaba.2006.30-05>
52. Slocum, S. K., Mehrkam, L. R., Peters, K. P., & Vollmer, T. R. (2017). Using differential reinforcement of a discard response to treat pica. *Behavioral Interventions*, 32(3), 234-241. <https://doi.org/10.1002/bin.1483>
53. Taylor, B. A., Hoch, H., & Weissman, M. (2005). The analysis and treatment of vocal stereotypy in a child with autism. *Behavioral Interventions*, 20(4), 239-253. <https://doi.org/10.1002/bin.200>
54. Thompson, M. J., McLaughlin, T. F., & Derby, K. M. (2011). The use of differential reinforcement to decrease the inappropriate verbalizations of a nine-year-old girl with autism. *Electronic Journal of Research in Educational Psychology*, 9(1), 183-196. <https://doi.org/10.25115/ejrep.v9i23.1433>
55. Tiger, J. H., Fisher, W. W., & Boussein, K. J. (2009). Therapist- and self-monitored DRO contingencies as a treatment for the self-injurious skin picking of a young man with Asperger syndrome. *Journal of Applied Behavior Analysis*, 42(2), 315-319. <https://doi.org/10.1901/jaba.2009.42-315>
56. Vladescu, J. C., & Kodak, T. (2016). The effect of a multiple-schedule arrangement on mands of a child with autism. *Behavioral Interventions*, 31(1), 3-11. <https://doi.org/10.1002/bin.1422>
57. Watts, A. C., Wilder, D. A., Gregory, M. K., Leon, Y., & Ditzian, K. (2013). The effect of rules on differential reinforcement of other behavior. *Journal of Applied Behavior Analysis*, 46(3), 680-684. <https://doi.org/10.1002/jaba.53>
58. Wiskow, K. M., Donaldson, J. M., & Matter, A. L. (2017). An evaluation of generalization of compliance across response types. *Behavior Analysis: Research and Practice*, 17(4), 402-420. <https://doi.org/10.1037/bar0000087>

Name of EBP	Direct Instruction (DI)
Definition of EBP	Direct instruction (DI) is a systematic approach to teaching and a sequenced instructional package that utilizes scripted protocols or lessons, emphasizes teacher and student dialogue through choral and independent student responses, and employs systematic and explicit error corrections to promote mastery and generalization. Direct Instruction is usually provided to small groups of learners and includes brisk pacing, student responses, explicit signals to cue student responses, correction procedures for incorrect or non-responses, and modeling correct responses. Instruction is sequenced so that students are required to master levels in a pre-specified order before moving to the next level. DI interventions can be used to support learners in acquiring literacy and mathematics skills and are often used in conjunction with other evidence-based practices including prompting, reinforcement, modeling, and visual supports.

		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓	✓	✓	
	Social						
	Joint attention						
	Play						
	Cognitive			✓	✓		
	School readiness			✓	✓		
	Academic/ Pre-academic		✓	✓			
	Adaptive/ self-help						
	Challenging/ Interfering behavior						
	Vocational						
	Motor						
	Mental health						
	Self- determination						

References

- Cadette, J. N., Wilson, C. L., Brady, M. P., Dukes, C., & Bennett, K. D. (2016). The effectiveness of direct instruction in teaching students with autism spectrum disorder to answer "Wh-" questions. *Journal of Autism and Developmental Disorders*, 46(9), 2968-2978. <https://doi.org/10.1007/s10803-016-2825-2>
- Crowley, K., McLaughlin, T., & Kahn, R. (2013). Using direct instruction flashcards and reading racetracks to improve sight word recognition of two elementary students with autism. *Journal of Developmental and Physical Disabilities*, 25(3), 297-311. <https://doi.org/10.1007/s10882-012-9307-z>
- Flores, M. M., & Ganz, J. B. (2007). Effectiveness of direct instruction for teaching statement inference, use of facts, and analogies to students with developmental disabilities and reading delays. *Focus on Autism and Other Developmental Disabilities*, 22(4), 244-251. <https://doi.org/10.1177/10883576070220040601>
- Flores, M. M., Schweck, K. B., & Hinton, V. (2016). Teaching language skills to preschool students with developmental delays and autism spectrum disorder using language for learning. *Rural Special Education Quarterly*, 35(1), 3-12. <https://doi.org/10.1177/875687051603500102>

5. Ganz, J. B., & Flores, M. M. (2009). The effectiveness of direct instruction for teaching language to children with autism spectrum disorders: Identifying materials. *Journal of Autism and Developmental Disorders*, 39(1), 75-83. <https://doi.org/10.1007/s10803-008-0602-6>
6. Kamps, D., Heitzman-Powell, L., Rosenberg, N., Mason, R., Schwartz, I., Romine, & Swinburne, R. (2016). Effects of reading mastery as a small group intervention for young children with ASD. *Journal of Developmental and Physical Disabilities*, 28(5), 703-722. <https://doi.org/10.1007/s10882-016-9503-3>
7. Thompson, J. L., Wood, C. L., Test, D. W., & Cease-Cook, J. (2012). Effects of direct instruction on telling time by students with autism. *Journal of Direct Instruction*, 12, 1-12.
8. Wolfe, K., Blankenship, A., & Rispoli, M. (2017). Generalization of skills acquired in language for learning by young children with autism spectrum disorder. *Journal of Developmental and Physical Disabilities*, 30(1), 1-16. <https://doi.org/10.1007/s10882-017-9572-y>

Name of EBP	Discrete Trial Training (DTT)
Definition of EBP	Discrete trial training (DTT) is a one-to-one instructional approach (most typically) used to teach skills in a planned, controlled, and systematic manner. DTT is characterized by repeated, or massed, trials that have a definite beginning and end. Within DTT, the use of antecedents and consequences is carefully planned and implemented. The instructional trial begins when the practitioner presents a clear direction or stimulus, which elicits a target behavior. Positive praise and/or tangible rewards are used to reinforce desired skills or behaviors. Data is typically collected on every trial. Other practices that are used in DTT include task analysis, prompting, time delay, and reinforcement.





Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓	✓	✓	✓
	Social	✓	✓	✓	✓	✓	✓
	Joint attention	✓	✓	✓			
	Play		✓	✓			
	Cognitive		✓	✓			
	School readiness		✓				
	Academic/ Pre-academic		✓	✓		✓	
	Adaptive/ self-help		✓	✓			
	Challenging/ Interfering behavior			✓			
	Vocational			✓			
	Motor						
	Mental health						
	Self-determination						

References

- Benedek-Wood, E., McNaughton, D., & Light, J. (2016). Instruction in letter-sound correspondences for children with autism and limited speech. *Topics in Early Childhood Special Education, 36*(1), 43-54. <https://doi.org/10.1177/0271121415593497>
- Carroll, R. A., Joachim, B. T., St Peter, C. C., & Robinson, N. (2015). A comparison of error-correction procedures on skill acquisition during discrete-trial instruction. *Journal of Applied Behavior Analysis, 48*(2), 257-273. <https://doi.org/10.1002/jaba.205>
- Carroll, R. A., Kodak, T., & Fisher, W. W. (2013). An evaluation of programmed treatment-integrity errors during discrete-trial instruction. *Journal of Applied Behavior Analysis, 46*(2), 379-394. <https://doi.org/10.1002/jaba.49>
- Cihak, D. F. (2007). Teaching students with autism to read pictures. *Research in Autism Spectrum Disorders, 1*(4), 318-329. <https://doi.org/10.1016/j.rasd.2006.12.002>
- Davis, B. J., Kahng, S., & Coryat, K. (2012). Manipulating motivating operations to facilitate the emergence of mands for a child with autism. *Analysis of Verbal Behavior, 28*, 145-150. <https://doi.org/10.1007/bf03393116>
- Delfs, C. H., Conine, D. E., Frampton, S. E., Shillingsburg, M. A., & Robinson, H. C. (2014). Evaluation of the efficiency of listener and tact instruction for children with autism. *Journal of Applied Behavior Analysis, 47*(4), 793-809. <https://doi.org/10.1002/jaba.166>
- Gena, A., Krantz, P. J., McClannahan, L. E., & Poulson, C. L. (1996). Training and generalization of affective behavior displayed by youth with autism. *Journal of Applied Behavior Analysis, 29*(3), 291-304. <https://doi.org/10.1901/jaba.1996.29-291>

8. Goldsmith, T. R., LeBlanc, L. A., & Sautter, R. A. (2007). Teaching intraverbal behavior to children with autism. *Research in Autism Spectrum Disorders*, 1(1), 1-13. <https://doi.org/10.1016/j.rasd.2006.07.001>
9. Gould, E., Tarbox, J., O'Hora, D., Noone, S., & Bergstrom, R. (2011). Teaching children with autism a basic component skill of perspective-taking. *Behavioral Interventions*, 26(1), 50-66. <https://doi.org/10.1002/bin.320>
10. Henrickson, M. L., Rapp, J. T., & Ashbeck, H. A. (2015). Teaching with massed versus interspersed trials: Effects on acquisition, maintenance, and problem behavior. *Behavioral Interventions*, 30(1), 36-50. <https://doi.org/10.1002/bin.1396>
11. Jahr, E. (2001). Teaching children with autism to answer novel wh-questions by utilizing a multiple exemplar strategy. *Research in Developmental Disabilities*, 22(5), 407-423. [https://doi.org/10.1016/S0891-4222\(01\)00081-6](https://doi.org/10.1016/S0891-4222(01)00081-6)
12. Joachim, B. T., & Carroll, R. A. (2017). A comparison of consequences for correct responses during discrete-trial instruction. *Learning and Motivation*, 62, 15-28. <https://doi.org/10.1016/j.lmot.2017.01.002>
13. Jones, E. A., Feeley, K. M., & Takacs, J. (2007). Teaching spontaneous responses to young children with autism. *Journal of Applied Behavior Analysis*, 40(3), 565-570. <https://doi.org/10.1901/jaba.2007.40-565>
14. Kelley, M. E., Shillingsburg, M. A., Castro, M. J., Addison, L. R., & LaRue, R. H. (2007). Further evaluation of emerging speech in children with developmental disabilities: Training verbal behavior. *Journal of Applied Behavior Analysis*, 40(3), 431-445. <https://doi.org/10.1901/jaba.2007.40-431>
15. Kodak, T., Campbell, V., Bergmann, S., LeBlanc, B., Kurtz-Nelson, E., Cariveau, T., Haq, S., Zemantic, P., & Mahon, J. (2016). Examination of efficacious, efficient, and socially valid error-correction procedures to teach sight words and prepositions to children with autism spectrum disorder. *Journal of Applied Behavior Analysis*, 49(3), 532-547. <https://doi.org/10.1002/jaba.310>
16. Kodak, T., & Clements, A. (2009). Acquisition of mands and tacts with concurrent echoic training. *Journal of Applied Behavior Analysis*, 42(4), 839-843. <https://doi.org/10.1901/jaba.2009.42-839>
17. Kodak, T., Clements, A., & LeBlanc, B. (2013). A rapid assessment of instructional strategies to teach auditory-visual conditional discriminations to children with autism. *Research in Autism Spectrum Disorders*, 7(6), 801-807. <https://doi.org/10.1016/j.rasd.2013.02.007>
18. Krstovska-Guerrero, I., & Jones, E. A. (2013). Joint attention in autism: Teaching smiling coordinated with gaze to respond to joint attention bids. *Research in Autism Spectrum Disorders*, 7(1), 93-108. <https://doi.org/10.1016/j.rasd.2012.07.007>
19. Lang, R., Rispoli, M., Sigafoos, J., Lancioni, G., Andrews, A., & Ortega, L. (2011). Effects of language of instruction on response accuracy and challenging behavior in a child with autism. *Journal of Behavioral Education*, 20(4), 252-259. <https://doi.org/10.1007/s10864-011-9130-0>
20. Leaf, J. B., Alcalay, A., Leaf, J. A., Tsuji, K., Kassardjian, A., Dale, S., McEachin, J., Taubman, M., & Leaf, R. (2016). Comparison of most-to-least to error correction for teaching receptive labelling for two children diagnosed with autism. *Journal of Research in Special Educational Needs*, 16(4), 217-225. <https://doi.org/10.1111/1471-3802.12067>
21. Leaf, J. B., Leaf, R., Taubman, M., McEachin, J., & Delmolino, L. (2014). Comparison of flexible prompt fading to error correction for children with autism spectrum disorder. *Journal of Developmental and Physical Disabilities*, 26(2), 203-224. <https://doi.org/10.1007/s10882-013-9354-0>
22. Leaf, J. B., Oppenheim-Leaf, M. L., Dotson, W. H., Johnson, V. A., Courtemanche, A. B., Sheldon, J. B., & Sherman, J. A. (2011). Effects of no-no prompting on teaching expressive labeling of facial expressions to children with and without a pervasive developmental disorder. *Education and Training in Autism and Developmental Disabilities*, 46(2), 186-203.
23. Leaf, J. B., Tsuji, K. H., Lentell, A. E., Dale, S. E., Kassardjian, A., Taubman, M., McEachin, J., Leaf, R., & Oppenheim-Leaf, M. L. (2013). A comparison of discrete trial teaching implemented in a one-to-one instructional format and in a group instructional format. *Behavioral Interventions*, 28(1), 82-106. <https://doi.org/10.1002/bin.1357>
24. Lee, G. T., Feng, H., Xu, S., & Jin, S. J. (2017). Increasing "object-substitution" symbolic play in young children with autism spectrum disorders. *Behavior Modification*, 43(1), 82-114. <https://doi.org/10.1177/0145445517739276>
25. Majdalany, L. M., Wilder, D. A., Greif, A., Mathisen, D., & Saini, V. (2014). Comparing massed-trial instruction, distributed-trial instruction, and task interspersal to teach tacts to children with autism spectrum disorders. *Journal of Applied Behavior Analysis*, 47(3), 657-662. <https://doi.org/10.1002/jaba.149>
26. Majdalany, L., Wilder, D. A., Smeltz, L., & Lipschultz, J. (2016). The effect of brief delays to reinforcement on the acquisition of tacts in children with autism. *Journal of Applied Behavior Analysis*, 49(2), 411-415. <https://doi.org/10.1002/jaba.282>
27. McHugh, L., Bobarnac, A., & Reed, P. (2011). Brief report: Teaching situation-based emotions to children with autistic spectrum disorder. *Journal of Autism and Developmental Disorders*, 41(10), 1423-1428. <https://doi.org/10.1007/s10803-010-1152-2>
28. McKeel, A. N., Dixon, M. R., Daar, J. H., R., Kyle E., & Szekeley, S. (2015). Evaluating the efficacy of the PEAK Relational Training System using a randomized controlled trial of children with autism. *Journal of Behavioral Education*, 24(2), 230-241. <https://doi.org/10.1007/s10864-015-9219-y>
29. Plaisance, L., Lerman, D. C., Laudont, C., & Wu, W. L. (2016). Inserting mastered targets during error correction when teaching skills to children with autism. *Journal of Applied Behavior Analysis*, 49(2), 251-64. <https://doi.org/10.1002/jaba.292>
30. Radley, K. C., Dart, E. H., Furlow, C. M., & Ness, E. J. (2015). Peer-mediated discrete trial training within a school setting. *Research in Autism Spectrum Disorders*, 9, 53-67. <https://doi.org/10.1016/j.rasd.2014.10.001>
31. Simer, N., & Cuvo, A. J. (2009). Training vision screening behavior to children with developmental disabilities. *Research in Autism Spectrum Disorders*, 3(2), 409-420. <https://doi.org/10.1016/j.rasd.2008.08.007>
32. Summers, J., Tarbox, J., Findel-Pyles, R. S., Wilke, A. E., Bergstrom, R., & Williams, W. L. (2011). Teaching two household safety skills to children with autism. *Research in Autism Spectrum Disorders*, 5(1), 629-632. <https://doi.org/10.1016/j.rasd.2010.07.008>
33. Taubman, M., Brierley, S., Wishner, J., Baker, D., McEachin, J., & Leaf, R. B. (2001). The effectiveness of a group discrete trial instructional approach for preschoolers with developmental disabilities. *Research in Developmental Disabilities*, 22(3), 205-219. [https://doi.org/10.1016/S0891-4222\(01\)00068-3](https://doi.org/10.1016/S0891-4222(01)00068-3)
34. Townley-Cochran, D., Leaf, J. B., Leaf, R., Taubman, M., & McEachin, J. (2017). Comparing error correction procedures for children diagnosed with autism. *Education Training Autism and Developmental Disabilities*, 52(1), 91-101.
35. Tullis, C. A., Frampton, S. E., Delfs, C. H., & Shillingsburg, M. A. (2017). Teaching problem explanations using instructive feedback. *Analysis of Verbal Behavior*, 33(1), 64-79. <https://doi.org/10.1007/s40616-016-0075-1>

36. Vedora, J., Barry, T., & Ward-Horner, J. C. (2017). An evaluation of differential observing responses during receptive label training. *Behavior Analysis in Practice, 10*(3), 290-295. <https://doi.org/10.1007/s40617-017-0188-6>
37. Whalen, C., Moss, D., Ilan, A. B., Vaupel, M., Fielding, P., Macdonald, K., Cernich, S., & Symon, J. (2010). Efficacy of TeachTown: Basics computer-assisted intervention for the intensive comprehensive autism program in Los Angeles Unified School District. *Autism, 14*(3), 179-197. <https://doi.org/10.1177/1362361310363282>
38. Wynn, J. W., & Smith, T. (2003). Generalization between receptive and expressive language in young children with autism. *Behavioral Interventions, 18*(4), 245-266. <https://doi.org/10.1002/bin.142>





Name of EBP		Exercise and Movement (EXM)					
Definition of EBP		Exercise and movement (EXM) interventions incorporate the use of physical exertion and/or mindful movement to target a variety of skills and behaviors. Exercise can be used as an antecedent activity to improve performance in a task or behavior, or it can be used to increase physical fitness and motor skills. Movement activities can include sports/recreation activities, martial arts, yoga, or other mindful practices that focus on specific sets of motor skills and techniques. EXM interventions may incorporate a warm-up/cool down and aerobic, strength, stretching, and/or skillful motor activities and be performed in individual or group/team-based settings. EXM is often used in conjunction with prompting, modeling, reinforcement, and visual supports.					
Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓	✓	✓	
	Social		✓	✓	✓	✓	
	Joint attention						
	Play		✓				
	Cognitive		✓	✓	✓	✓	
	School readiness		✓	✓	✓	✓	
	Academic/ Pre-academic		✓				
	Adaptive/ self-help			✓	✓	✓	
	Challenging/ Interfering behavior		✓	✓	✓	✓	
	Vocational						
	Motor		✓	✓	✓	✓	
	Mental health						
	Self-determination						

References

- Bahrami, F., Movahedi, A., Marandi, S. M., & Abedi, A. (2012). Kata techniques training consistently decreases stereotypy in children with autism spectrum disorder. *Research in Developmental Disabilities, 33*(4), 1183-1193. <https://doi.org/10.1016/j.ridd.2012.01.018>
- *Bahrami, F., Movahedi, A., Marandi, S. M., & Sorensen, C. (2016). The effect of karate techniques training on communication deficit of children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 46*(3), 978-986. <https://doi.org/10.1007/s10803-015-2643-y>
- Cannella-Malone, H. I., Tullis, C. A., & Kazee, A. R. (2011). Using antecedent exercise to decrease challenging behavior in boys with developmental disabilities and an emotional disorder. *Journal of Positive Behavior Interventions, 13*(4), 230-239. <https://doi.org/10.1177/109830071140612>
- Celiberti, D. A., Bobo, H. E., Kelly, K. S., Harris, S. L., & Handleman, J. S. (1997). The differential and temporal effects of antecedent exercise on the self-stimulatory behavior of a child with autism. *Research in Developmental Disabilities, 18*(2), 139-150. [https://doi.org/10.1016/S0891-4222\(96\)00032-7](https://doi.org/10.1016/S0891-4222(96)00032-7)
- Chan, A. S., Han, Y. M., Sze, S. L., & Lau, E. M. (2015). Neuroenhancement of memory for children with autism by a mind-body exercise. *Frontiers in Psychology, 6*, 1893. <https://doi.org/10.3389/fpsyg.2015.01893>
- Chan, A. S., Sze, S. L., Siu, N. Y., Lau, E. M., & Cheung, M. C. (2013). A Chinese mind-body exercise improves self-control of children with autism: A randomized controlled trial. *PLoS One, 8*(7), e68184, 1-12. <https://doi.org/10.1371/journal.pone.0068184>

7. Cheldavi, H., Shakerian, S., Shetab Boshehri, S. N., & Zarghami, M. (2014). The effects of balance training intervention on postural control of children with autism spectrum disorder: Role of sensory information. *Research in Autism Spectrum Disorders*, 8(1), 8-14. <https://doi.org/10.1016/j.rasd.2013.09.016>
8. Fragala-Pinkham, M. A., Haley, S. M., & O'Neil, M. E. (2011). Group swimming and aquatic exercise programme for children with autism spectrum disorders: A pilot study. *Developmental Neurorehabilitation*, 14(4), 230-241. <https://doi.org/10.3109/17518423.2011.575438>
9. Luke, S., Vail, C. O., & Ayres, K. M. (2014). Using antecedent physical activity to increase on-task behavior in young children. *Exceptional Children*, 80(4), 489-503. <https://doi.org/10.1177/0014402914527241>
10. *Movahedi, A., Bahrami, F., Marandi, S. M., & Abedi, A. (2013). Improvement in social dysfunction of children with autism spectrum disorder following long term Kata techniques training. *Research in Autism Spectrum Disorders*, 7(9), 1054-1161. <https://doi.org/10.1016/j.rasd.2013.04.012>
11. Neely, L., Rispoli, M., Gerow, S., & Ninci, J. (2015). Effects of antecedent exercise on academic engagement and stereotypy during instruction. *Behavior Modification*, 39(1), 98-116. <https://doi.org/10.1177/0145445514552891>
12. Nelson, C., Paul, K., Johnston, S. S., & Kidder, J. E. (2017). Use of a creative dance intervention package to increase social engagement and play complexity of young children with autism spectrum disorder. *Education and Training in Autism and Developmental Disabilities*, 52(2), 170-185.
13. Nicholson, H., Kehle, T.J., Bray, M.A., & Van Heest, J. (2011). The effects of antecedent physical activity on the academic engagement of children with autism spectrum disorder. *Psychology in the Schools*, 48(2), 198-213. <https://doi.org/10.1002/pits>
14. Oriol, K. N., George, C. L., Peckus, R., & Semon, A. (2011). The effects of aerobic exercise on academic engagement in young children with autism-spectrum disorder. *Pediatric Physical Therapy*, 23(2), 187-193. <https://doi.org/10.1097/PEP.0b013e318218f149>
15. Pan, C. Y. (2011). The efficacy of an aquatic program on physical fitness and aquatic skills in children with and without autism spectrum disorders. *Research in Autism Spectrum Disorders*, 5(1), 657-665. <https://doi.org/10.1016/j.rasd.2010.08.001>
16. Pan, C. Y., Chu, C. H., Tsai, C. L., Sung, M. C., Huang, C. Y., & Ma, W. Y. (2017). The impacts of physical activity intervention on physical and cognitive outcomes in children with autism spectrum disorder. *Autism*, 21(2), 190-202. <https://doi.org/10.1177/1362361316633562>
17. Sotoodeh, M. S., Arabameri, E., Panahibakhsh, M., Kheiroddin, F., Mirdoozandeh, H., & Ghanizadeh, A. (2017). Effectiveness of yoga training program on the severity of autism. *Complementary Therapies in Clinical Practice*, 28, 47-53. <https://doi.org/10.1016/j.ctcp.2017.05.001>
18. *Srinivasan, S. M., Eigsti, I. M., Gifford, T., & Bhat, A. N. (2016). The effects of embodied rhythm and robotic interventions on the spontaneous and responsive verbal communication skills of children with Autism Spectrum Disorder (ASD): A further outcome of a pilot randomized controlled trial. *Research in Autism Spectrum Disorders*, 27, 73-87. <https://doi.org/10.1016/j.rasd.2016.04.001>
19. *Srinivasan, S. M., Eigsti, I. M., Neelly, L., & Bhat, A. N. (2016). The effects of embodied rhythm and robotic interventions on the spontaneous and responsive social attention patterns of children with Autism Spectrum Disorder (ASD): A pilot randomized controlled trial. *Research in Autism Spectrum Disorders*, 27, 54-72. <https://doi.org/10.1016/j.rasd.2016.01.004>
20. Srinivasan, S. M., Park, I. K., Neelly, L. B., & Bhat, A. N. (2015). A comparison of the effects of rhythm and robotic interventions on repetitive behaviors and affective states of children with Autism Spectrum Disorder (ASD). *Research in Autism Spectrum Disorders*, 18, 51-63. <https://doi.org/10.1016/j.rasd.2015.07.004>
21. Tse, C. Y. A., Pang, C. L., & Lee, P. H. (2017). Choosing an appropriate physical exercise to reduce stereotypic behavior in children with autism spectrum disorders: A non-randomized crossover study. *Journal of Autism and Developmental Disorders*, 48(5), 1666-1672. <https://doi.org/10.1007/s10803-017-3419-3>





* indicates articles that are either secondary data analysis or follow-up for an article already included in the list

Name of EBP		Extinction (EXT)					
Definition of EBP		Extinction (EXT) is the removal of reinforcing consequences of a challenging behavior in order to reduce the future occurrence of that behavior. The extinction procedure relies on accurately identifying the function of the behavior and the consequences that may be reinforcing its occurrence. The consequence that is believed to reinforce the occurrence of the target challenging behavior is removed or withdrawn, resulting in a decrease of the target behavior. An initial increase in the challenging behavior (often called an "extinction burst") is common before eventually being extinguished. Extinction should not be used in isolation. Other practices that are used in combination with extinction include differential reinforcement and functional behavior assessment.					
Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓	✓	✓	
	Social		✓	✓	✓		
	Joint attention				✓		
	Play						
	Cognitive						
	School readiness		✓	✓	✓		
	Academic/ Pre-academic						
	Adaptive/ self-help	✓	✓	✓		✓	
	Challenging/ Interfering behavior		✓	✓	✓	✓	
	Vocational						
	Motor						
	Mental health						
	Self-determination						

References

1. Banda, D. R., McAfee, J. K., & Hart, S. L. (2009). Decreasing self-injurious behavior in a student with autism and Tourette syndrome through positive attention and extinction. *Child & Family Behavior Therapy, 31*(2), 144-156. <https://doi.org/10.1080/07317100902910604>
2. Bui, L. T. D., Moore, D. W., & Anderson, A. (2014). Using escape extinction and reinforcement to increase eating in a young child with autism. *Behaviour Change, 30*(1), 48-55. <https://doi.org/10.1017/bec.2013.5>
3. Chezan, L., Drasgow, E., Legg, J., & Hollborn, A. (2016). Effects of conditional discrimination training and choice opportunities on manding for two young children with Autism Spectrum Disorder and language delays. *Journal of Developmental and Physical Disabilities, 28*(4), 557-579. <https://doi.org/10.1007/s10882-016-9493-1>
4. Drasgow, E., Martin, C. A., Chezan, L. C., Wolfe, K., & Halle, J. W. (2016). Mand training: An examination of response-class structure in three children with autism and severe language delays. *Behavior Modification, 40*(3), 347-76. <https://doi.org/10.1177/0145445515613582>
5. Falcomata, T. S., Hoffman, K. J., Gainey, S., Muething, C. S., & Fienup, D. M. (2013). A preliminary evaluation of reinstatement of destructive behavior displayed by individuals with autism. *The Psychological Record, 63*(3), 453-466. <https://doi.org/10.11133/j.tpr.2013.63.3.004>

6. Gale, C. M., Eikeseth, S., & Rudrud, E. (2011). Functional assessment and behavioural intervention for eating difficulties in children with autism: A study conducted in the natural environment using parents and ABA tutors as therapists. *Journal of Autism and Developmental Disorders, 41*(10), 1383-1396. <https://doi.org/10.1007/s10803-010-1167-8>
7. Grow, L. L., Kelley, M. E., Roane, H. S., & Shillingsburg, M. A. (2008). Utility of extinction-induced response variability for the selection of mands. *Journal of Applied Behavior Analysis, 41*(1), 15-24. <https://doi.org/10.1901/jaba.2008.41-15>
8. Hagopian, L. P., Kuhn, S. A. C., Long, E. S., & Rush, K. S. (2005). Schedule thinning following communication training: Using competing stimuli to enhance tolerance to decrements in reinforcer density. *Journal of Applied Behavior Analysis, 38*(2), 177-193. <https://doi.org/10.1901/jaba.2005.43-04>
9. Kodak, T., Paden, A., & Dickes, N. (2012). Training and generalization of peer-directed mands with non-vocal children with autism. *The Analysis of Verbal Behavior, 28*(1), 119-24. <https://doi.org/>
10. Kuhn, D. E., Hardesty, S. L., & Sweeney, N. M. (2009). Assessment and treatment of excessive straightening and destructive behavior in an adolescent diagnosed with autism. *Journal of Applied Behavior Analysis, 42*(2), 355-360. <https://doi.org/10.1901/jaba.2009.42-355>
11. Kuhn, S. A. C., Lerman, D. C., Vorndran, C. M., & Addison, L. (2006). Analysis of factors that affect responding in a two-response chain in children with developmental disabilities. *Journal of Applied Behavior Analysis, 39*(3), 263-280. <https://doi.org/10.1901/jaba.2006.118-05>
12. Lalli, J. S., Casey, S., & Kates, K. (1995). Reducing escape behavior and increasing task completion with functional communication training, extinction and response chaining. *Journal of Applied Behavior Analysis, 28*(3), 261-268. <https://doi.org/10.1901/jaba.1995.28-261>
13. Leon, Y., Lazarchick, W. N., Rooker, G. W., & DeLeon, I. G. (2013). Assessment of problem behavior evoked by disruption of ritualistic toy arrangements in a child with autism. *Journal of Applied Behavior Analysis, 46*(2), 507-11. <https://doi.org/10.1002/jaba.41>
14. Mace, F. C., Pratt, J. L., Prager, K. L., & Pritchard, D. (2011). An evaluation of three methods of saying "no" to avoid an escalating response class hierarchy. *Journal of Applied Behavior Analysis, 44*(1), 83-94. <https://doi.org/10.1901/jaba.2011.44-83>
15. Patel, M. R., Piazza, C. C., Kelly, M. L., Ochsner, C. A., & Santana, C. M. (2001). Using a fading procedure to increase fluid consumption in a child with feeding problems. *Journal of Applied Behavior Analysis, 34*(3), 357-360. <https://doi.org/10.1901/jaba.2001.34-357>
16. Reeves, L. M., Umbreit, J., Ferro, J. B., & Liaupsin, C. J. (2013). Function-based intervention to support the inclusion of students with autism. *Education and Training in Autism and Developmental Disabilities, 48*(3), 379-391. <https://doi.org/>
17. Reeves, L. M., Umbreit, J., Ferro, J. B., & Liaupsin, C. J. (2017). The role of the replacement behavior in function-based intervention. *Education and Training in Autism and Developmental Disabilities, 52*(3), 305-316. <https://doi.org/10.2307/26420402>
18. Rispoli, M., Camargo, S., Machalicek, W., Lang, R., & Sigafos, J. (2014). Functional communication training in the treatment of problem behavior maintained by access to rituals. *Journal of Applied Behavior Analysis, 47*(3), 580-93. <https://doi.org/10.1002/jaba.130>
19. Schmidt, J. D., Bednar, M. K., Willse, L. V., Goetzal, A. L., Concepcion, A., Pincus, S. M., Hardesty, S. L., & Bowman, L. G. (2017). Evaluating treatments for functionally equivalent problem behavior maintained by adult compliance with mands during interactive play. *Journal of Behavioral Education, 26*(2), 169-187. <https://doi.org/10.1007/s10864-016-9264-1>
20. Seiverling, L., Williams, K., Sturmey, P., & Hart, S. (2012). Effects of behavioral skills training on parental treatment of children's food selectivity. *Journal of Applied Behavior Analysis, 45*(1), 197-203. <https://doi.org/10.1901/jaba.2012.45-197>
21. Tereshko, L., & Sottolano, D. (2017). The effects of an escape extinction procedure using protective equipment on self-injurious behavior. *Behavioral Interventions, 32*(2), 152-159. <https://doi.org/10.1002/bin.1475>
22. Thompson, R. H., Fisher, W. W., Piazza, C. C., & Kuhn, D. E. (1998). The evaluation and treatment of aggression maintained by attention and automatic reinforcement. *Journal of Applied Behavior Analysis, 31*(1), 103-116. <https://doi.org/10.1901/jaba.1998.31-103>
23. Tiger, J. H., Fisher, W. W., Toussaint, K. A., & Kodak, T. (2009). Progressing from initially ambiguous functional analyses: Three case examples. *Research in Developmental Disabilities, 30*(5), 910-926. <https://doi.org/10.1016/j.ridd.2009.01.005>
24. Valentino, A. L., Shillingsburg, M. A., Call, N. A., Burton, B., & Bowen, C. N. (2011). An investigation of extinction-induced vocalizations. *Behavior Modification, 35*(3), 284-298. <https://doi.org/10.1177/0145445511398412>
25. Waters, M. B., Lerman, D. C., & Hovanetz, A. N. (2009). Separate and combined effects of visual schedules and extinction plus differential reinforcement on problem behavior occasioned by transitions. *Journal of Applied Behavior Analysis, 42*(2), 309-313. <https://doi.org/10.1901/jaba.2009.42-309>



Name of EBP		Functional Behavioral Assessment (FBA)					
Definition of EBP		Functional behavior assessment (FBA) is a systematic way of determining the underlying function or purpose of a behavior so that an effective intervention plan can be developed. FBA consists of describing the interfering or problem behavior, identifying antecedent and consequent events that control the behavior (sometimes systematically tested through a functional analysis), developing a hypothesis of the function of the behavior, and testing the hypothesis. Data collection is an important part of the FBA process. FBA is typically used to identify the causes of interfering behaviors such as self-injury, aggression towards others, or destructive behaviors and should be followed by the creation and implementation of a behavioral intervention to address the interfering behavior described					
Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication			✓		✓	
	Social						
	Joint attention						
	Play						
	Cognitive						
	School readiness		✓	✓	✓		
	Academic/ Pre-academic		✓	✓			
	Adaptive/ self-help			✓			
	Challenging/ Interfering behavior	✓	✓	✓	✓	✓	✓
	Vocational						
	Motor						
	Mental health						
	Self-determination						

References

- Blair, K. C., Lee, I., Cho, S., & Dunlap, G. (2011). Positive behavior support through family-school collaboration for young children with autism. *Topics in Early Childhood Special Education, 31*(1), 22-36. <https://doi.org/10.1177/0271121410377510>
- Blair, K. S. C., Umbreit, J., Dunlap, G., & Jung, G. (2007). Promoting inclusion and peer participation through assessment-based intervention. *Topics in Early Childhood Special Education, 27*(3), 134-147. <https://doi.org/10.1177/02711214070270030401>
- Bruhn, A. L., Balint-Langel, K., Troughton, L., Langan, S., Lodge, K., & Kortemeyer, S. (2015). Assessing and treating stereotypical behaviors in classrooms using a functional approach. *Behavioral Disorders, 41*(1), 21-37. <https://doi.org/10.17988/0198-7429-41.1.21>
- Camacho, R., Anderson, A., Moore, D. W., & Furlonger, B. (2014). Conducting a function-based intervention in a school setting to reduce inappropriate behaviour of a child with autism. *Behaviour Change, 31*(1), 65-77. <https://doi.org/10.1017/bec.2013.33>
- Clarke, S., Worcester, J., Dunlap, G., Murray, M., & Bradley-Klug, K. (2002). Using multiple measures to evaluate positive behavior support: A case example. *Journal of Positive Behavior Interventions, 4*(3), 131-145. <https://doi.org/10.1177/10983007020040030201>
- Clay, C. J., Clohisy, A. M., Ball, A. M., Haider, A. F., Schmitz, B. A., & Kahng, S. (2017). Further evaluation of presentation format of competing stimuli for treatment of automatically maintained challenging behavior. *Behavior Modification, 42*(3), 382-397. <https://doi.org/10.1177/0145445517740322>

7. Devlin, S., Leader, G., & Healy, O. (2009). Comparison of behavioral intervention and sensory-integration therapy in the treatment of self-injurious behavior. *Research in Autism Spectrum Disorders*, 3(1), 223-231. <https://doi.org/10.1016/j.rasd.2008.06.004>
8. Dunlap, G., & Fox, L. (1999). A demonstration of behavioral support for young children with autism. *Journal of Positive Behavior Interventions*, 1(2), 77-87. <https://doi.org/10.1177/109830079900100202>
9. Gann, C. J., Ferro, J. B., Umbreit, J., & Liaupsin, C. J. (2014). Effects of a comprehensive function-based intervention applied across multiple educational settings. *Remedial and Special Education*, 35(1), 50-60. <https://doi.org/10.1177/0741932513501088>
10. Kodak, T., Fisher, W. W., Clements, A., Paden, A. R., & Dickes, N. R. (2011). Functional assessment of instructional variables: Linking assessment and treatment. *Research in Autism Spectrum Disorders*, 5(3), 1059-1077. <https://doi.org/10.1016/j.rasd.2010.11.012>
11. Leon, Y., Lazarchick, W. N., Rooker, G. W., & DeLeon, I. G. (2013). Assessment of problem behavior evoked by disruption of ritualistic toy arrangements in a child with autism. *Journal of Applied Behavior Analysis*, 46(2), 507-11. <https://doi.org/10.1002/jaba.41>
12. Lucyshyn, J. M., Albin, R. W., Horner, R. H., Mann, J. C., Mann, J. A., & Wadsworth, G. (2007). Family implementation of positive behavior support for a child with autism: Longitudinal, single-case, experimental, and descriptive replication and extension. *Journal of Positive Behavior Interventions*, 9(3), 131-150. <https://doi.org/10.1177/10983007070090030201>
13. Majdalany, L. M., Wilder, D. A., Allgood, J., & Sturkie, L. (2017). Evaluation of a preliminary method to examine antecedent and consequent contributions to noncompliance. *Journal of Applied Behavior Analysis*, 50(1), 146-158. <https://doi.org/10.1002/jaba.353>
14. McComas, J., Hoch, H., Paone, D., & El-Roy, D. (2000). Escape behavior during academic tasks: A preliminary analysis of idiosyncratic establishing operations. *Journal of Applied Behavior Analysis*, 33(4), 479-493. <https://doi.org/10.1901/jaba.2000.33-479>
15. O'Reilly, M. F., Edrisinha, C., Sigafos, J., Lancioni, G., & Andrews, A. (2006). Isolating the evocative and abative effects of an establishing operation on challenging behavior. *Behavioral Interventions*, 21(3), 195-204. <https://doi.org/10.1002/bin.215>
16. Roberts-Gwinn, M. M., Luiten, L., Derby, K. M., Johnson, T. A., & Weber, K. (2001). Identification of competing reinforcers for behavior maintained by automatic reinforcement. *Journal of Positive Behavior Interventions*, 3(2), 83-87. <https://doi.org/10.1177/109830070100300204>
17. Robertson, R. E., Wehby, J. H., & King, S. M. (2013). Increased parent reinforcement of spontaneous requests in children with autism spectrum disorder: effects on problem behavior. *Research in Developmental Disabilities*, 34(3), 1069-82. <https://doi.org/10.1016/j.ridd.2012.12.011>
18. Rodriguez, N. M., Thompson, R. H., Schlichenmeyer, K., & Stocco, C. S. (2012). Functional analysis and treatment of arranging and ordering by individuals with an autism spectrum disorder. *Journal of Applied Behavior Analysis*, 45(1), 438-52. <https://doi.org/10.1901/jaba.2012.45-1>
19. Schmidt, J. D., Drasgow, E., Halle, J. W., Martin, C. A., & Bliss, S. A. (2014). Discrete-trial functional analysis and functional communication training with three individuals with autism and severe problem behavior. *Journal of Positive Behavior Interventions*, 16(1), 44-55. <https://doi.org/10.1177/1098300712470519>
20. Slaton, J. D., Hanley, G. P., & Raftery, K. J. (2017). Interview informed functional analyses: A comparison of synthesized and isolated components. *Journal of Applied Behavior Analysis*, 50(2), 252-277. <https://doi.org/10.1002/jaba.384>
21. Strain, P. S., Wilson, K., & Dunlap, G. (2011). Prevent-teach-reinforce: Addressing problem behaviors of students with autism in general education classrooms. *Behavioral Disorders-Journal of the Council for Children with Behavioral Disorders*, 36(3), 160-171. <https://doi.org/10.1177/019874291003600302>

Name of EBP	Functional Communication Training (FCT)
Definition of EBP	Functional communication training (FCT) is a set of practices that replace a challenging behavior that has a communication function with more appropriate and effective communication behaviors or skills. FCT is a set of practices that replace a challenging behavior that has a communication function with more appropriate and effective communication behaviors or skills. FCT is preceded by a functional behavior assessment to identify the function of an interfering behavior followed by teaching an appropriate communication skill that may serve the same purpose for the learner with ASD. FCT often includes differential reinforcement procedure in which an individual is taught an alternative response that results in the same class of reinforcement identified as maintaining problem behavior. Problem behavior is typically placed on extinction. The distinct component of FCT is that the alternative response is a recognizable form of communication (e.g., a vocalization, manual sign, Picture Exchange Communication System®).




Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓	✓	✓	
	Social		✓	✓			
	Joint attention						
	Play		✓	✓			
	Cognitive						
	School readiness		✓	✓			
	Academic/ Pre-academic						
	Adaptive/ self-help		✓	✓		✓	
	Challenging/ Interfering behavior		✓	✓	✓	✓	
	Vocational						
	Motor						
	Mental health						
	Self-determination						

References

1. Artman-Meeker, K., Rosenberg, N., Badgett, N., Yang, X. Y., & Penney, A. (2017). The effects of bug-in-ear coaching on pre-service behavior analysts' use of functional communication training. *Behavior Analysis in Practice, 10*(3), 228-241. <https://doi.org/10.1007/s40617-016-0166-4>
2. Boesch, M. C., Taber-Doughty, T., Wendt, O., & Smalts, S. S. (2015). Using a behavioral approach to decrease self-injurious behavior in an adolescent with severe autism: A data-based case study. *Education & Treatment of Children, 38*(3), 305-328. <https://doi.org/10.1353/etc.2015.0012>
3. Briggs, A. M., Akers, J. S., Greer, B. D., Fisher, W. W., & Retzlaff, B. J. (2017). Systematic changes in preference for schedule-thinning arrangements as a function of relative reinforcement density. *Behavior Modification, 42*(4), 472-497. <https://doi.org/10.1177/0145445517742883>
4. Brown, K. A., Wacker, D. P., Derby, K. M., Peck, S. M., Richman, D. M., Sasso, G. M., Knutson, C.L., & Harding, J. W. (2000). Evaluating the effects of functional communication training in the presence and absence of establishing operations. *Journal of Applied Behavior Analysis, 33*(1), 53-71. <https://doi.org/10.1901/jaba.2000.33-53>

5. Buckley, S. D., & Newchok, D. K. (2005). Differential impact of response effort within a response chain on use of mands in a student with autism. *Research in Developmental Disabilities: A Multidisciplinary Journal*, 26(1), 77-85. <https://doi.org/10.1016/j.ridd.2004.07.004>
6. Call, N. A., & Lomas Mevers, J. E. (2014). The relative influence of motivating operations for positive and negative reinforcement on problem behavior during demands. *Behavioral Interventions*, 29(1), 4-20. <https://doi.org/10.1002/bin.1374>
7. Casey, S. D., & Mercial, C. L. (2006). The use of functional communication training without additional treatment procedures in an inclusive school setting. *Behavioral Disorders*, 32(1), 46-54. <https://doi.org/10.1177/019874290603200102>
8. Chezan, L. C., Drasgow, E., Martin, C. A., & Halle, J. W. (2016). Negatively-reinforced mands: An examination of resurgence to existing mands in two children with autism and language delays. *Behavior Modification*, 40(6), 922-953. <https://doi.org/10.1177/0145445516648664>
9. Derosa, N. M., Fisher, W. W., & Steege, M. W. (2015). An evaluation of time in establishing operation on the effectiveness of functional communication training. *Journal of Applied Behavior Analysis*, 48(1), 115-30. <https://doi.org/10.1002/jaba.180>
10. Falcomata, T. S., Muething, C. S., Gainey, S., Hoffman, K., & Fragale, C. (2013). Further evaluations of functional communication training and chained schedules of reinforcement to treat multiple functions of challenging behavior. *Behavior Modification*, 37(6), 723-46. <https://doi.org/10.1177/0145445513500785>
11. Falcomata, T. S., Muething, C. S., Silbaugh, B. C., Adami, S., Hoffman, K., Shpall, C., & Ringdahl, J. E. (2017). Lag schedules and functional communication training: Persistence of mands and relapse of problem behavior. *Behavior Modification*, 42(3), 314-334. <https://doi.org/10.1177/0145445517741475>
12. Falcomata, T. S., Roane, H. S., Feeney, B. J., & Stephenson, K. M. (2010). Assessment and treatment of elopement maintained by access to stereotypy. *Journal of Applied Behavior Analysis*, 43(3), 513-517. <https://doi.org/10.1901/jaba.2010.43-513>
13. Falcomata, T. S., Roane, H. S., Muething, C. S., Stephenson, K. M., & Ing, A. D. (2012). Functional communication training and chained schedules of reinforcement to treat challenging behavior maintained by terminations of activity interruptions. *Behavior Modification*, 36(5), 630-649. <https://doi.org/10.1177/0145445511433821>
14. Falcomata, T. S., Wacker, D. P., Ringdahl, J. E., Vinquist, K., & Dutt, A. (2013). An evaluation of generalization of mands during functional communication training. *Journal of Applied Behavior Analysis*, 46(2), 444-454. <https://doi.org/10.1002/jaba.37>
15. Falcomata, T. S., White, P., Muething, C. S., & Fragale, C. (2012). A functional communication training and chained schedule procedure to treat challenging behavior with multiple functions. *Journal of Developmental and Physical Disabilities*, 24(6), 529-538. <https://doi.org/10.1007/s10882-012-9287-z>
16. Fisher, W. W., Kuhn, D. E., & Thompson, R. H. (1998). Establishing discriminative control of responding using functional and alternative reinforcers during functional communication training. *Journal of Applied Behavior Analysis*, 31(4), 543-560. <https://doi.org/10.1901/jaba.1998.31-543>
17. Fragale, C., Rojeski, L., O'Reilly, M., & Gevarter, C. (2016). Evaluation of functional communication training as a satiation procedure to reduce challenging behavior in instructional environments for children with autism. *International Journal of Developmental Disabilities*, 62(3), 139-146. <https://doi.org/10.1080/20473869.2016.1183957>
18. Gibson, J. L., Pennington, R. C., Stenhoff, D. M., & Hopper, J. S. (2010). Using desktop videoconferencing to deliver interventions to a preschool student with autism. *Topics in Early Childhood Special Education*, 29(4), 214-225. <https://doi.org/10.1177/0271121409352873>
19. Guzinski, E. M., Cihon, T. M., & Eshleman, J. (2012). The effects of tact training on stereotypic vocalizations in children with autism. *The Analysis of Verbal Behavior*, 28(1), 101-110. <https://doi.org/10.1007/bf03393110>
20. Haq, S. S., Machalicek, W., Garbacz, S. A., & Drew, C. (2017). Employing a fixed-lean multiple schedule in the treatment of challenging behavior for children with autism spectrum disorder. *Behavior Modification*, 42(4), 610-633. <https://doi.org/10.1177/0145445517743206>
21. Kuhn, D. E., Hardesty, S. L., & Sweeney, N. M. (2009). Assessment and treatment of excessive straightening and destructive behavior in an adolescent diagnosed with autism. *Journal of Applied Behavior Analysis*, 42(2), 355-360. <https://doi.org/10.1901/jaba.2009.42-355>
22. Leon, Y., Lazarchick, W. N., Rooker, G. W., & DeLeon, I. G. (2013). Assessment of problem behavior evoked by disruption of ritualistic toy arrangements in a child with autism. *Journal of Applied Behavior Analysis*, 46(2), 507-511. <https://doi.org/10.1002/jaba.41>
23. Mancil, G. R., Conroy, M. A., Nakao, T., & Alter, P. J. (2006). Functional communication training in the natural environment: A pilot investigation with a young child with autism spectrum disorder. *Education and Treatment of Children*, 29(4), 615-633.
24. Matter, A. L., & Zarcone, J. R. (2017). A comparison of existing and novel communication responses used during functional communication training. *Behavioral Interventions*, 32(3), 217-224. <https://doi.org/10.1002/bin.1481>
25. Olive, M. L., Lang, R. B., & Davis, T. N. (2008). An analysis of the effects of functional communication and a voice output communication aid for a child with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 2(2), 223-236. <https://doi.org/10.1016/j.rasd.2007.06.002>
26. Rispoli, M., Camargo, S., Machalicek, W., Lang, R., & Sigafos, J. (2014). Functional communication training in the treatment of problem behavior maintained by access to rituals. *Journal of Applied Behavior Analysis*, 47(3), 580-593. <https://doi.org/10.1002/jaba.130>
27. Schindler, H. R., & Horner, R. H. (2005). Generalized reduction of problem behavior of young children with autism: Building trans-situational interventions. *American Journal on Mental Retardation*, 110(1), 36-47. [https://doi.org/10.1352/0895-8017\(2005\)110<36:GROPBO>2.0.CO;2](https://doi.org/10.1352/0895-8017(2005)110<36:GROPBO>2.0.CO;2)
28. Schmidt, J. D., Drasgow, E., Halle, J. W., Martin, C. A., & Bliss, S. A. (2014). Discrete-trial functional analysis and functional communication training with three individuals with autism and severe problem behavior. *Journal of Positive Behavior Interventions*, 16(1), 44-55. <https://doi.org/10.1177/1098300712470519>
29. Shamlian, K. D., Fisher, W. W., Steege, M. W., Cavanaugh, B. M., Samour, K., & Querim, A. C. (2016). Evaluation of multiple schedules with naturally occurring and therapist-arranged discriminative stimuli following functional communication training. *Journal of Applied Behavior Analysis*, 49(2), 228-50. <https://doi.org/10.1002/jaba.293>
30. Tiger, J. H., Fisher, W. W., Toussaint, K. A., & Kodak, T. (2009). Progressing from initially ambiguous functional analyses: Three case examples. *Research in Developmental Disabilities*, 30(5), 910-926. <https://doi.org/10.1016/j.ridd.2009.01.005>
31. Volkert, V. M., Lerman, D. C., Call, N. A., & Trosclair-Lasserre, N. (2009). An evaluation of resurgence during treatment with functional communication training. *Journal of Applied Behavior Analysis*, 42(1), 145-160. <https://doi.org/10.1901/jaba.2009.42-145>





Name of EBP	Modeling (MD)
Definition of EBP	Modeling (MD) involves the demonstration of a desired target behavior that results in use of the behavior by the learner and that leads to the acquisition of the target behavior. Thus, the learner is picking up on a targeted skill through observational learning. MD is often combined with other strategies such as prompting and reinforcement.

		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓	✓	✓
	Social	✓	✓	✓	✓	✓	✓
	Joint attention		✓				
	Play		✓	✓			
	Cognitive						
	School readiness		✓	✓	✓		
	Academic/ Pre-academic		✓	✓	✓	✓	
	Adaptive/ self-help		✓	✓			
	Challenging/ Interfering behavior		✓	✓			
	Vocational						✓
	Motor	✓	✓				
	Mental health						
	Self-determination						

References

- Ainsworth, M. K., Evmenova, A. S., Behrmann, M., & Jerome, M. (2016). Teaching phonics to groups of middle school students with autism, intellectual disabilities and complex communication needs. *Research in Developmental Disabilities, 56*, 165-76. <https://doi.org/10.1016/j.ridd.2016.06.001>
- Barnes, C. S., & Rehfeldt, R. A. (2013). Effects of fluency instruction on selection-based and topography-based comprehension measures. *Research in Autism Spectrum Disorders, 7*(6), 639-647. <https://doi.org/10.1016/j.rasd.2013.02.010>
- Bremer, E., Balogh, R., & Lloyd, M. (2015). Effectiveness of a fundamental motor skill intervention for 4-year-old children with autism spectrum disorder: A pilot study. *Autism, 19*(8), 980-991. <https://doi.org/10.1177/1362361314557548>
- Carlson, B., McLaughlin, T., Derby, K. M., & Blecher, J. (2009). Teaching preschool children with autism and developmental delays to write. *Electronic Journal of Research in Educational Psychology, 7*(1), 225-238. <https://doi.org/10.25115/ejrep.v7i17.1313>
- Cihak, D. F., & Foust, J. L. (2008). Comparing number lines and touch points to teach addition facts to students with autism. *Focus on Autism and Other Developmental Disabilities, 23*(3), 131-137. <https://doi.org/10.1177/1088357608318950>
- DeQuinzio, J. A., & Taylor, B. A. (2015). Teaching children with autism to discriminate the reinforced and nonreinforced responses of others: implications for observational learning. *Journal of Applied Behavior Analysis, 48*(1), 38-51. <https://doi.org/10.1002/jaba.192>
- Dixon, M. R., Belisle, J., Munoz, B. E., Stanley, C. R., & Rowsey, K. E. (2017). Teaching metaphorical extensions of private events through rival-model observation to children with autism. *Journal of Applied Behavior Analysis, 50*(4), 744-749. <https://doi.org/10.1002/jaba.418>
- Ergenekon, Y., Tekin-Iftar, E., Kapan, A., & Akmanoglu, N. (2014). Comparison of video and live modeling in teaching response chains to children with autism. *Education and Training in Autism and Developmental Disabilities, 49*(2), 200-213.

9. Ganz, J. B., Flores, M. M., & Lashley, E. E. (2011). Effects of a treatment package on imitated and spontaneous verbal requests in children with autism. *Education and Training in Autism and Developmental Disabilities, 46*(4), 596-606.
10. Gena, A., Krantz, P. J., McClannahan, L. E., & Poulson, C. L. (1996). Training and generalization of affective behavior displayed by youth with autism. *Journal of Applied Behavior Analysis, 29*(3), 291-304. <https://doi.org/10.1901/jaba.1996.29-291>
11. Greenberg, J. H., Lau, W., & Lau, S. (2016). Teaching appropriate play to replace stereotypy using a treatment package with students having autism. *Global Education Review, 3*(3), 94-104.
12. Grow, L. L., Kodak, T., & Clements, A. (2017). An evaluation of instructive feedback to teach play behavior to a child with autism spectrum disorder. *Behavior Analysis in Practice, 10*(3), 313-317. <https://doi.org/10.1007/s40617-016-0153-9>
13. Knight, V. F., Smith, B. R., Spooner, F., & Browder, D. (2012). Using explicit instruction to teach science descriptors to students with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 42*(3), 378-89. <https://doi.org/10.1007/s10803-011-1258-1>
14. Landa, R. J., Holman, K. C., O'Neill, A. H., & Stuart, E. A. (2011). Intervention targeting development of socially synchronous engagement in toddlers with autism spectrum disorder: A randomized controlled trial. *Journal of Child Psychology and Psychiatry, 52*(1), 13-21. <https://doi.org/10.1111/j.1469-7610.2010.02288.x>
15. Leaf, J. B., Oppenheim-Leaf, M. L., Townley-Cochran, D., Leaf, J. A., Alcalay, A., Milne, C., Kassardjian, A., Tsuji, K., Dale, S., Leaf, R., Taubman, M., & McEachin, J. (2016). Changing preference from tangible to social activities through an observation procedure. *Journal of Applied Behavior Analysis, 49*(1), 49-57. <https://doi.org/10.1002/jaba.276>
16. Lee, R., & Sturmey, P. (2014). The effects of script-fading and a Lag-1 schedule on varied social responding in children with autism. *Research in Autism Spectrum Disorders, 8*(4), 440-448. <https://doi.org/10.1016/j.rasd.2014.01.003>
17. Matson, J. L., Box, M. L., & Francis, K. L. (1992). Treatment of elective mute behavior in two developmentally delayed children using modeling and contingency management. *Journal of Child Psychology and Psychiatry, 23*(3), 221-229. [https://doi.org/10.1016/0005-7916\(92\)90039-L](https://doi.org/10.1016/0005-7916(92)90039-L)
18. Matson, J. L., Taras, M. E., Sevin, J. A., Love, S. R., & Fridley, D. (1990). Teaching self-help skills to autistic and mentally retarded children. *Research in Developmental Disabilities, 11*(4), 361-378. [https://doi.org/10.1016/0891-4222\(90\)90023-2](https://doi.org/10.1016/0891-4222(90)90023-2)
19. McDowell, L. S., Gutierrez, A., & Bennett, K. D. (2015). Analysis of live modeling plus prompting and video modeling for teaching imitation to children with autism. *Behavioral Interventions, 30*(4), 333-351. <https://doi.org/10.1002/bin.1419>
20. Miller, S. A., Rodriguez, N. M., & Rourke, A. J. (2015). Do mirrors facilitate acquisition of motor imitation in children diagnosed with autism? *Journal of Applied Behavior Analysis, 48*(1), 194-8. <https://doi.org/10.1002/jaba.187>
21. O'Reilly, M., Fragale, C., Gainey, S., Kang, S., Koch, H., Shubert, J., Zein, F. E., Longino, D., Chung, M., Xu, Z., White, P., Lang, R., Davis, T., Rispoli, M., Lancioni, G., Didden, R., Healy, O., Kagohara, D., van der Meer, L., & Sigafos, J. (2012). Examination of an antecedent communication intervention to reduce tangibly maintained challenging behavior: A controlled analog analysis. *Research in Developmental Disabilities, 33*(5), 1462-8. <https://doi.org/10.1016/j.ridd.2012.03.017>
22. Rigsby-Eldredge, M., & McLaughlin, T. F. (1992). The effects of modeling and praise on self-initiated behavior across settings with two adolescent students with autism. *Journal of Developmental and Physical Disabilities, 4*(3), 205-218. <https://doi.org/10.1007/BF01046965>
23. Schenning, H., Knight, V., & Spooner, F. (2013). Effects of structured inquiry and graphic organizers on social studies comprehension by students with autism spectrum disorders. *Research in Autism Spectrum Disorders, 7*(4), 526-540. <https://doi.org/10.1016/j.rasd.2012.12.007>
24. Singh, B. D., Moore, D. W., Furlonger, B. E., Anderson, A., Busacca, M. L., & English, D. L. (2017). Teaching reading comprehension skills to a child with autism using behaviour skills training. *Journal of Autism and Developmental Disorders, 47*(10), 3049-3058. <https://doi.org/10.1007/s10803-017-3229-7>
25. Smith, B. R., Spooner, F., & Wood, C. L. (2013). Using embedded computer-assisted explicit instruction to teach science to students with autism spectrum disorder. *Research in Autism Spectrum Disorders, 7*(3), 433-443. <https://doi.org/10.1016/j.rasd.2012.10.010>
26. Taylor, B. A., DeQuinzio, J. A., & Stine, J. (2012). Increasing observational learning of children with autism: A preliminary analysis. *Journal of Applied Behavior Analysis, 45*(4), 815-820. <https://doi.org/10.1901/jaba.2012.45-815>
27. Whalen, C., & Schreibman, L. (2003). Joint attention training for children with autism using behavior modification procedures. *Journal of Child Psychology and Psychiatry, 44*(3), 456-468. <https://doi.org/10.1111/1469-7610.00135>
28. Williams, G., Pérez-González, L. A., & Vogt, K. (2003). The role of specific consequences in the maintenance of three types of questions. *Journal of Applied Behavior Analysis, 36*(3), 285-296. <https://doi.org/10.1901/jaba.2003.36-285>

Name of EBP		Music-Mediated Intervention (MMI)					
Definition of EBP		Music-mediated intervention (MMI) uses music as a key feature of the intervention delivery. This includes music therapy, which occurs in a therapeutic relationship with a trained music therapist, in addition to the planned use of songs, melodic intonation, and/or rhythm to support the learning or performance of target behaviors and skills in varied contexts.					
Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓		
	Social		✓	✓	✓		
	Joint attention						
	Play		✓				
	Cognitive						
	School readiness		✓	✓			
	Academic/ Pre-academic						
	Adaptive/ self-help	✓					
	Challenging/ Interfering behavior		✓	✓			
	Vocational						
	Motor		✓	✓			
	Mental health						
	Self- determination						


References

- Dieringer, S. T., Porretta, D. L., & Sainato, D. (2017). Music and on-task behaviors in preschool children with autism spectrum disorder. *Adapted Physical Activity Quarterly*, 34(3), 217-234. <https://doi.org/10.1123/apaq.2015-0033>
- Ghasemtabar, S. N., Hosseini, M., Fayyaz, I., Arab, S., Naghashian, H., & Poudineh, Z. (2015). Music therapy: An effective approach in improving social skills of children with autism. *Advanced Biomedical Research*, 4(157). <https://doi.org/10.4103/2277-9175.161584>
- Kern, P., & Aldridge, D. (2006). Using embedded music therapy interventions to support outdoor play of young children with autism in an inclusive community-based child care program. *Journal of Music Therapy*, 43(4), 270-294. <https://doi.org/10.1093/jmt/43.4.270>
- Kern, P., Wakeford, L., & Aldridge, D. (2007). Improving the performance of a young child with autism during self-care tasks using embedded song interventions: A case study. *Music Therapy Perspectives*, 25(1), 43-51. <https://doi.org/10.1093/mtp/25.1.43>
- Kern, P., Wolery, M., & Aldridge, D. (2007). Use of songs to promote independence in morning greeting routines for young children with autism. *Journal of Autism and Developmental Disorders*, 37(7), 1264-1271. <https://doi.org/10.1007/s10803-006-0272-1>
- Sandiford, G. A., Mainess, K. J., & Daher, N. S. (2013). A pilot study on the efficacy of melodic based communication therapy for eliciting speech in nonverbal children with autism. *Journal of Autism and Developmental Disorders*, 43(6), 1298-1307. <https://doi.org/10.1007/s10803-012-1672-z>
- *Srinivasan, S. M., Eigsti, I. M., Gifford, T., & Bhat, A. N. (2016). The effects of embodied rhythm and robotic interventions on the spontaneous and responsive verbal communication skills of children with Autism Spectrum Disorder (ASD): A further outcome of a pilot randomized controlled trial. *Research in Autism Spectrum Disorders*, 27, 73-87. <https://doi.org/10.1016/j.rasd.2016.04.001>

8. *Srinivasan, S. M., Eigsti, I. M., Neelly, L., & Bhat, A. N. (2016). The effects of embodied rhythm and robotic interventions on the spontaneous and responsive social attention patterns of children with Autism Spectrum Disorder (ASD): A pilot randomized controlled trial. *Research in Autism Spectrum Disorders*, 27, 54-72. <https://doi.org/10.1016/j.rasd.2016.01.004>
9. Srinivasan, S. M., Park, I. K., Neelly, L. B., & Bhat, A. N. (2015). A comparison of the effects of rhythm and robotic interventions on repetitive behaviors and affective states of children with Autism Spectrum Disorder (ASD). *Research in Autism Spectrum Disorders*, 18, 51-63. <https://doi.org/10.1016/j.rasd.2015.07.004>

* indicates articles that are either secondary data analysis or follow-up for an article already included in the list

Name of EBP	Naturalistic Intervention (NI)
Definition of EBP	<p>Naturalistic Intervention (NI) is a collection of practices including environmental arrangement and interaction techniques implemented during everyday routines and activities in the learner's classroom or home environment. These practices are designed to encourage specific target behaviors based on learners' interests by building more complex skills that are naturally reinforcing and appropriate to the interaction. NIs are embedded in typical activities and/or routines in which the learner participates. The NI practices emerge from behavioral (e.g., applied behavior analysis) and/or developmental approaches to learning, and encompass interventions that have been noted as naturalistic developmental behavioral interventions (NDBIs; Schreibman et al., 2015) in recent literature.</p> <ul style="list-style-type: none"> Manualized Interventions Meeting Criteria: Joint Attention Symbolic Play and Emotion Regulation (JASPER), Milieu Teaching (also includes Enhanced Milieu Teaching, Prelinguistic Milieu Teaching), and Pivotal Response Treatment (PRT).

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓		
	Social	✓	✓	✓	✓	✓	✓
	Joint attention	✓	✓	✓			
	Play	✓	✓	✓	✓	✓	✓
	Cognitive		✓	✓			
	School readiness	✓	✓	✓			
	Academic/ Pre-academic	✓	✓				
	Adaptive/ self-help	✓	✓				
	Challenging/ Interfering behavior	✓	✓	✓	✓	✓	✓
	Vocational						
	Motor		✓	✓			
	Mental health	✓	✓	✓			
	Self-determination						

References

- Brady, N. C., Storkel, H. L., Bushnell, P., Barker, R. M., Saunders, K., Daniels, D., & Fleming, K. (2015). Investigating a multimodal intervention for children with limited expressive vocabularies associated with autism. *American Journal of Speech-Language Pathology, 24*(3), 438-59. https://doi.org/10.1044/2015_ajslp-14-0093
- Brock, M. E., Dueker, S. A., & Barczak, M. A. (2017). Brief report: Improving social outcomes for students with autism at recess through peer-mediated pivotal response training. *Journal of Autism and Developmental Disorders, 48*(6), 2224-2230. <https://doi.org/10.1007/s10803-017-3435-3>
- Carnett, A., Raulston, T., Lang, R., Tostanoski, A., Lee, A., Sigafoos, J., & Machalicek, W. (2014). Effects of a perseverative interest-based token economy on challenging and on-task behavior in a child with autism. *Journal of Behavioral Education, 23*(3), 368-377. <https://doi.org/10.1007/s10864-014-9195-7>
- Carroll, R. A., & Kodak, T. (2015). Using instructive feedback to increase response variability during intraverbal training for children with autism spectrum disorder. *The Analysis of Verbal Behavior, 31*(2), 183-99. <https://doi.org/10.1007/s40616-015-0039-x>

5. Carter, C. M. (2001). Using choice with game play to increase language skills and interactive behaviors in children with autism. *Journal of Positive Behavior Interventions*, 3(3), 131-151. <https://doi.org/10.1177/109830070100300302>
6. Casenhiser, D. M., Binns, A., McGill, F., Morderer, O., & Shanker, S. G. (2015). Measuring and supporting language function for children with autism: Evidence from a randomized control trial of a social-interaction-based therapy. *Journal of Autism and Developmental Disorders*, 45(3), 846-857. <https://doi.org/10.1007/s10803-014-2242-3>
7. Casenhiser, D. M., Shanker, S. G., & Stieben, J. (2013). Learning through interaction in children with autism: Preliminary data from a social-communication-based intervention. *Autism*, 17(2), 220-41. <https://doi.org/10.1177/1362361311422052>
8. Chang, Y. C., Shire, S. Y., Shih, W., Gelfand, C., & Kasari, C. (2016). Preschool deployment of evidence-based social communication intervention: JASPER in the classroom. *Journal of Autism and Developmental Disorders*, 46(6), 2211-2223. <https://doi.org/10.1007/s10803-016-2752-2>
9. Chiang, C. H., Chu, C. L., & Lee, T. C. (2016). Efficacy of caregiver-mediated joint engagement intervention for young children with autism spectrum disorders. *Autism*, 20(2), 172-82. <https://doi.org/10.1177/1362361315575725>
10. Christensen-Sandfort, R. J., & Whinnery, S. B. (2013). Impact of milieu teaching on communication skills of young children with autism spectrum disorder. *Topics in Early Childhood Special Education*, 32(4), 211-222. <https://doi.org/10.1177/0271121411404930>
11. Drager, K. D., Postal, V. J., Carrolus, L., Castellano, M., Gagliano, C., & Glynn, J. (2006). The effect of aided language modeling on symbol comprehension and production in 2 preschoolers with autism. *American Journal of Speech-Language Pathology*, 15(2), 112-125. [https://doi.org/10.1044/1058-0360\(2006/012\)](https://doi.org/10.1044/1058-0360(2006/012))
12. Gianoumis, S., Seiverling, L., & Sturmey, P. (2012). The effects of behavior skills training on correct teacher implementation of natural language paradigm teaching skills and child behavior. *Behavioral Interventions*, 27(2), 57-74. <https://doi.org/10.1002/bin.1334>
13. Goods, K. S., Ishijima, E., Chang, Y. C., & Kasari, C. (2013). Preschool based JASPER intervention in minimally verbal children with autism: Pilot RCT. *Journal of Autism and Developmental Disorders*, 43(5), 1050-1056. <https://doi.org/10.1007/s10803-012-1644-3>
14. Gulsrud, A. C., Kasari, C., Freeman, S., & Paparella, T. (2007). Children with autism's response to novel stimuli while participating in interventions targeting joint attention or symbolic play skills. *Autism*, 11(6), 535-546. <https://doi.org/10.1177/1362361307083255>
15. Hancock, T. B., & Kaiser, A. P. (2002). The effects of trainer-implemented enhanced milieu teaching on the social communication of children with autism. *Topics in Early Childhood Special Education*, 22(1), 39-54. <https://doi.org/10.1177/027112140202200104>
16. Hardan, A. Y., Gengoux, G. W., Berquist, K. L., Libove, R. A., Ardel, C. M., Phillips, J., Frazier, T. W., & Minjarez, M. B. (2015). A randomized controlled trial of pivotal response treatment group for parents of children with autism. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 56(8), 884-892. <https://doi.org/10.1111/jcpp.12354>
17. Harjusola-Webb, S. M., & Robbins, S. H. (2012). The effects of teacher-implemented naturalistic intervention on the communication of preschoolers with autism. *Topics in Early Childhood Special Education*, 32(2), 99-110. <https://doi.org/10.1177/0271121410397060>
18. *Harrop, C., Gulsrud, A., Shih, W., Hovsepyan, L., & Kasari, C. (2017). The impact of caregiver-mediated JASPER on child restricted and repetitive behaviors and caregiver responses. *Autism Research*, 10(5), 983-992. <https://doi.org/10.1002/aur.1732>
19. Ingersoll, B. (2010). Brief report: Pilot randomized controlled trial of reciprocal imitation training for teaching elicited and spontaneous imitation to children with autism. *Journal of Autism and Developmental Disorders*, 40(9), 1154-1160. <https://doi.org/10.1007/s10803-010-0966-2>
20. Ingersoll, B. (2012). Brief report: Effect of a focused imitation intervention on social functioning in children with autism. *Journal of Autism and Developmental Disorders*, 42(8), 1768-1773. <https://doi.org/10.1007/s10803-011-1423-6>
21. Ingersoll, B., Berger, N., Carlsen, D., & Hamlin, T. (2016). Improving social functioning and challenging behaviors in adolescents with ASD and significant ID: A randomized pilot feasibility trial of reciprocal imitation training in a residential setting. *Developmental Neurorehabilitation*, 20(4), 236-246. <https://doi.org/10.1080/17518423.2016.1211187>
22. Ingersoll, B., Dvortcsak, A., Whalen, C., & Sikora, D. (2005). The effects of a developmental, social-pragmatic language intervention on rate of expressive language production in young children with autistic spectrum disorders. *Focus on Autism and Other Developmental Disabilities*, 20(4), 213-222. <https://doi.org/10.1177/10883576050200040301>
23. Ingersoll, B., & Lalonde, K. (2010). The impact of object and gesture imitation training on language use in children with autism spectrum disorder. *Journal of Speech, Language and Hearing Research*, 53(4), 1040-1051. [https://doi.org/10.1044/1092-4388\(2009/09-0043\)](https://doi.org/10.1044/1092-4388(2009/09-0043))
24. Ingersoll, B., Lewis, E., & Kroman, E. (2007). Teaching the imitation and spontaneous use of descriptive gestures in young children with autism using a naturalistic behavioral intervention. *Journal of Autism and Developmental Disorders*, 37(8), 1446-1456. <https://doi.org/10.1007/s10803-006-0221-z>
25. Ingersoll, B., Wainer, A. L., Berger, N. I., Pickard, K. E., & Bonter, N. (2016). Comparison of a self-directed and therapist-assisted telehealth parent-mediated intervention for children with ASD: A pilot RCT. *Journal of Autism and Developmental Disorders*, 46(7), 2275-2284. <https://doi.org/10.1007/s10803-016-2755-z>
26. Ingersoll, B., Walton, K., Carlsen, D., & Hamlin, T. (2013). Social intervention for adolescents with autism and significant intellectual disability: Initial efficacy of reciprocal imitation training. *American Journal on Intellectual and Developmental Disabilities*, 118(4), 247-261. <https://doi.org/10.1352/1944-7558-188.4.247>
27. Ishizuka, Y., & Yamamoto, J. I. (2016). Contingent imitation increases verbal interaction in children with autism spectrum disorders. *Autism*, 20(8), 1011-1020. <https://doi.org/10.1177/1362361315622856>
28. Jocelyn, L. J., Casiro, O. G., Beattie, D., Bow, J., & Kneisz, J. (1998). Treatment of children with autism: A randomized controlled trial to evaluate a caregiver-based intervention program in community day-care centers. *Journal of Developmental & Behavioral Pediatrics*, 19(5), 326-334. <https://doi.org/10.1097/00004703-199810000-00002>
29. *Kaale, A., Fagerland, M. W., Martinsen, E. W., & Smith, L. (2014). Preschool-based social communication treatment for children with autism: 12-month follow-up of a randomized trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, 53(2), 188-198. <https://doi.org/10.1016/j.jaac.2013.09.019>
30. Kaale, A., Smith, L., & Sponheim, E. (2012). A randomized controlled trial of preschool-based joint attention intervention for children with autism. *Journal of Child Psychology and Psychiatry*, 53(1), 97-105. <https://doi.org/10.1111/j.1469-7610.2011.02450.x>

31. Kaiser, A. P., Hancock, T. B., & Nietfeld, J. P. (2000). The effects of parent-implemented enhanced milieu teaching on the social communication of children who have autism. *Early Education and Development, 11*(4), 423-446. https://doi.org/10.1207/s15566935eed1104_4
32. Kasari, C., Freeman, S., & Paparella, T. (2006). Joint attention and symbolic play in young children with autism: A randomized controlled intervention study. *Journal of Child Psychology and Psychiatry, 47*(6), 611-620. <https://doi.org/10.1111/j.1469-7610.2005.01567.x>
33. *Kasari, C., Gulsrud, A., Freeman, S., Paparella, T., & Helleman, G. (2012). Longitudinal follow-up of children with autism receiving targeted interventions on joint attention and play. *Journal of the American Academy of Child and Adolescent Psychiatry, 51*(5), 487-95. <https://doi.org/10.1016/j.jaac.2012.02.019>
34. Kasari, C., Gulsrud, A., Paparella, T., Helleman, G., & Berry, K. (2015). Randomized comparative efficacy study of parent-mediated interventions for toddlers with autism. *Journal of Consulting and Clinical Psychology, 83*(3), 554-563. <https://doi.org/10.1037/a0039080>
35. Kasari, C., Gulsrud, A. C., Wong, C., Kwon, S., & Locke, J. (2010). Randomized controlled caregiver mediated joint engagement intervention for toddlers with autism. *Journal of Autism and Developmental Disorders, 40*(9), 1045-1056. <https://doi.org/10.1007/s10803-010-0955-5>
36. *Kasari, C., Paparella, T., Freeman, S.N., & Jahromi, L. (2008). Language outcome in autism: Randomized comparison of joint attention and play interventions. *Journal of Consulting and Clinical Psychology, 76*(1), 125-137. <https://doi.org/10.1037/0022-006X.76.1.125>
37. Ketcheson, L., Hauck, J., & Ulrich, D. (2017). The effects of an early motor skill intervention on motor skills, levels of physical activity, and socialization in young children with autism spectrum disorder: A pilot study. *Autism, 21*(4), 481-492. <https://doi.org/10.1177/1362361316650611>
38. Koegel, R. L., Camarata, S., Koegel, L. K., Ben-Tall, A., & Smith, A. E. (1998). Increasing speech intelligibility in children with autism. *Journal of Autism and Developmental Disorders, 28*(3), 241-251. <https://doi.org/10.1023/A:1026073522897>
39. Koegel, R., Fredeen, R., Kim, S., Danial, J., Rubinstein, D., & Koegel, L. (2012). Using perseverative interests to improve interactions between adolescents with autism and their typical peers in school settings. *Journal of Positive Behavior Interventions, 14*(3), 133-141. <https://doi.org/10.1177/1098300712437043>
40. Koegel, R. L., Kim, S., & Koegel, L. K. (2014). Training paraprofessionals to improve socialization in students with ASD. *Journal of Autism and Developmental Disorders, 44*(9), 2197-208. <https://doi.org/10.1007/s10803-014-2094-x>
41. Koegel, R., Kim, S., Koegel, L., & Schwartzman, B. (2013). Improving socialization for high school students with ASD by using their preferred interests. *Journal of Autism and Developmental Disorders, 43*(9), 2121-2134. <https://doi.org/10.1007/s10803-013-1765-3>
42. Koegel, R. L., Koegel, L. K., & Surratt, A. (1992). Language intervention and disruptive behavior in preschool children with autism. *Journal of Autism and Developmental Disorders, 22*(2), 141-153. <https://doi.org/10.1007/BF01058147>
43. Koegel, L. K., Vernon, T., Koegel, R. L., Koegel, B. L., & Paullin, A. W. (2012). Improving social engagement and initiations between children with autism spectrum disorder and their peers in inclusive settings. *Journal of Positive Behavior Interventions, 14*(4), 220-227. <https://doi.org/10.1177/1098300712437042>
44. Kohler, F. W., Anthony, L. J., Steighner, S. A., & Hoyson, M. (2001). Teaching social interaction skills in the integrated preschool: An examination of naturalistic tactics. *Topics in Early Childhood Special Education, 21*(2), 93-103. <https://doi.org/10.1177/027112140102100203>
45. Landa, R. J., Holman, K. C., O'Neill, A. H., & Stuart, E. A. (2011). Intervention targeting development of socially synchronous engagement in toddlers with autism spectrum disorder: A randomized controlled trial. *Journal of Child Psychology and Psychiatry, 52*(1), 13-21. <https://doi.org/10.1111/j.1469-7610.2010.02288.x>
46. Law, G. C., Neihart, M., & Dutt, A. (2017). The use of behavior modeling training in a mobile app parent training program to improve functional communication of young children with autism spectrum disorder. *Autism, 22*(4), 424-439. <https://doi.org/10.1177/1362361316683887>
47. Lawton, K., & Kasari, C. (2012). Teacher-implemented joint attention intervention: Pilot randomized controlled study for preschoolers with autism. *Journal of Consulting and Clinical Psychology, 80*(4), 687-693. <https://doi.org/10.1037/a0028506>
48. Ledford, J. R., Lane, J. D., Shepley, C., & Kroll, S. M. (2016). Using teacher-implemented playground interventions to increase engagement, social behaviors, and physical activity for young children with autism. *Focus on Autism and Other Developmental Disabilities, 31*(3), 163-173. <https://doi.org/10.1177/1088357614547892>
49. Loughrey, T. O., Betz, A. M., Majdalany, L. M., & Nicholson, K. (2014). Using instructive feedback to teach category names to children with autism. *Journal of Applied Behavior Analysis, 47*(2), 425-30. <https://doi.org/10.1002/jaba.123>
50. Matsuzaki, A., & Yamamoto, J. (2012). Effects of an early intervention program on preverbal communication in a child with autism: Developmental and behavioral analysis with a multiple-baseline design. *Japanese Journal of Special Education, 49*(6), 657-669. <https://doi.org/10.6033/tokkyou.49.657>
51. McDuffie, A. S., Lieberman, R. G., & Yoder, P. J. (2012). Object interest in autism spectrum disorder: A treatment comparison. *Autism, 16*(4), 398-405. <https://doi.org/10.1177/1362361309360983>
52. McGee, G. G., & Daly, T. (2007). Incidental teaching of age-appropriate social phrases to children with autism. *Research and Practice for Persons with Severe Disabilities, 32*(2), 112-123. <https://doi.org/10.2511/rpsd.32.2.112>
53. Meadan, H., Snodgrass, M. R., Meyer, L. E., Fisher, K. W., Chung, M. Y., & Halle, J. W. (2016). Internet-based parent-implemented intervention for young children with autism: A pilot study. *Journal of Early Intervention, 38*(1), 439-453. <https://doi.org/10.1177/1053815116630327>
54. Mohammadzahari, F., Koegel, L. K., Rezaei, M., & Bakhshi, E. (2015). A randomized clinical trial comparison between pivotal response treatment (PRT) and adult-driven applied behavior analysis (ABA) intervention on disruptive behaviors in public school children with autism. *Journal of Autism and Developmental Disorders, 45*(9), 2899-2907. <https://doi.org/10.1007/s10803-015-2451-4>
55. Nefdt, N., Koegel, R., Singer, G., & Gerber, M. (2010). The use of a self-directed learning program to provide introductory training in pivotal response treatment to parents of children with autism. *Journal of Positive Behavior Interventions, 12*(1), 23-32. <https://doi.org/10.1177/1098300709334796>
56. Nelson, C., Paul, K., Johnston, S. S., & Kidder, J. E. (2017). Use of a creative dance intervention package to increase social engagement and play complexity of young children with autism spectrum disorder. *Education and Training in Autism and Developmental Disabilities, 52*(2), 170-185.
57. Ogletree, B. T., Davis, P., Hambrecht, G., & Phillips, E. W. (2012). Using milieu training to promote photograph exchange for a young child with autism. *Focus on Autism and Other Developmental Disabilities, 27*(2), 93-101. <https://doi.org/10.1177/1088357612441968>

58. Olive, M. L., De la Cruz, B., Davis, T.N., Chan, J.M., Lang, R.B., O'Reilly, M.F., & Dickson, S.M. (2007). The effects of enhanced milieu teaching and a voice output communication aid on the requesting of three children with autism. *Journal of Autism and Developmental Disorders*, 37(8), 1505-1513. <https://doi.org/10.1007/s10803-006-0243-6>
59. Pickles, A., Le Couteur, A., Leadbitter, K., Salomone, E., Cole-Fletcher, R., Tobin, H., Gammer, I., Lowry, J., Vamvakas, G., Byford, S., Aldred, C., Slonims, V., McConachie, H., Howlin, P., Parr, J. R., Charman, T., & Green, J. (2016). Parent-mediated social communication therapy for young children with autism (PACT): Long-term follow-up of a randomised controlled trial. *The Lancet*, 388(10059), 2501-2509. [https://doi.org/10.1016/s0140-6736\(16\)31229-6](https://doi.org/10.1016/s0140-6736(16)31229-6)
60. Pierce, K., & Schreibman, L. (1997). Multiple peer use of pivotal response training to increase social behaviors of classmates with autism: Results from trained and untrained peers. *Journal of Applied Behavior Analysis*, 30(1), 157-160. <https://doi.org/10.1901/jaba.1997.30-157>
61. Rahman, A., Divan, G., Hamdani, S. U., Vajaratkar, V., Taylor, C., Leadbitter, K., Aldred, C., Minhas, A., Cardozo, P., Emsley, R., Patel, V., & Green, J. (2016). Effectiveness of the parent-mediated intervention for children with autism spectrum disorder in south Asia in India and Pakistan (PASS): A randomised controlled trial. *Lancet Psychiatry*, 3(2), 128-136. [https://doi.org/10.1016/s2215-0366\(15\)00388-0](https://doi.org/10.1016/s2215-0366(15)00388-0)
62. Rickards, A. L., Walstab, J. E., Wright-Rossi, R. A., Simpson, J., & Reddihough, D. S. (2007). A randomized, controlled trial of a home-based intervention program for children with autism and developmental delay. *Journal of Developmental & Behavioral Pediatrics*, 28(4), 308-316. <https://doi.org/10.1097/DBP.0b013e318032792e>
63. Robinson, S. E. (2011). Teaching paraprofessionals of students with autism to implement pivotal response treatment in inclusive school settings using a brief video feedback training package. *Focus on Autism and Other Developmental Disabilities*, 26(2), 105-118. <https://doi.org/10.1177/1088357611407063>
64. Rollins, P. R., Campbell, M., Hoffman, R. T., & Self, K. (2016). A community-based early intervention program for toddlers with autism spectrum disorders. *Autism*, 20(2), 219-232. <https://doi.org/10.1177/1362361315577217>
65. Schertz, H. H., Odom, S. L., Baggett, K. M., & Sideris, J. H. (2013). Effects of joint attention mediated learning for toddlers with autism spectrum disorders: An initial randomized controlled study. *Early Childhood Research Quarterly*, 28(2), 249-258. <https://doi.org/10.1016/j.ecresq.2012.06.006>
66. Schertz, H. H., Odom, S. L., Baggett, K. M., & Sideris, J. H. (2017). Mediating parent learning to promote social communication for toddlers with autism: Effects from a randomized controlled trial. *Journal of Autism and Developmental Disorders*, 48(3), 853-867. <https://doi.org/10.1007/s10803-017-3386-8>
67. Sherer, M. R., & Schreibman, L. (2005). Individual behavioral profiles and predictors of treatment effectiveness for children with autism. *Journal of Consulting and Clinical Psychology*, 73(3), 525-538. <https://doi.org/10.1037/0022-006X.73.3.525>
68. Shire, S. Y., Chang, Y. C., Shih, W., Bracaglia, S., Kodjoe, M., & Kasari, C. (2017). Hybrid implementation model of community-partnered early intervention for toddlers with autism: A randomized trial. *Journal of Child Psychology and Psychiatry*, 58(5), 612-622. <https://doi.org/10.1111/jcpp.12672>
69. Siller, M., Hutman, T., & Sigman, M. (2013). A parent-mediated intervention to increase responsive parental behaviors and child communication in children with ASD: A randomized clinical trial. *Journal of Autism and Developmental Disorders*, 43(3), 540-555. <https://doi.org/10.1007/s10803-012-1584-y>
70. Solomon, R., Van Egeren, L. A., Mahoney, G., Quon Huber, M. S., & Zimmerman, P. (2014). PLAY project home consultation intervention program for young children with autism spectrum disorders: A randomized controlled trial. *Journal of Developmental and Behavioral Pediatrics*, 35(8), 475-485. <https://doi.org/10.1097/DBP.0000000000000096>
71. Stadnick, N. A., Stahmer, A., & Brookman-Frazee, L. (2015). Preliminary Effectiveness of project ImPACT: A parent-mediated intervention for children with autism spectrum disorder delivered in a community program. *Journal of Autism and Developmental Disorders*, 45(7), 2092-2104. <https://doi.org/10.1007/s10803-015-2376-y>
72. Stahmer, A. C. (1995). Teaching symbolic play skills to children with autism using pivotal response training. *Journal of Autism and Developmental Disorders*, 25(2), 123-141. <https://doi.org/10.1007/BF02178500>
73. Strauss, K., Esposito, M., Polidori, G., Vicari, S., Valeri, G., & Fava, L. (2014). Facilitating play, peer engagement and social functioning in a peer group of young autistic children: Comparing highly structured and more flexible behavioral approaches. *Research in Autism Spectrum Disorders*, 8(4), 413-423. <https://doi.org/10.1016/j.rasd.2014.01.002>
74. Turner-Brown, L., Hume, K., Boyd, B. A., & Kainz, K. (2016). Preliminary efficacy of family implemented TEACCH for toddlers: Effects on parents and their toddlers with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 49(7), 2685-2698. <https://doi.org/10.1007/s10803-016-2812-7>
75. Venker, C. E., McDuffie, A., Ellis Weismer, S., & Abbeduto, L. (2012). Increasing verbal responsiveness in parents of children with autism: A pilot study. *Autism*, 16(6), 568-585. <https://doi.org/10.1177/1362361311413396>
76. Vernon, T. W., Koegel, R. L., Dauterman, H., & Stolen, K. (2012). An early social engagement intervention for young children with autism and their parents. *Journal of Autism and Developmental Disorders*, 42(12), 2702-17. <https://doi.org/10.1007/s10803-012-1535-7>
77. Wetherby, A. M., Guthrie, W., Woods, J., Schatschneider, C., Holland, R. D., Morgan, L., & Lord, C. (2014). Parent-implemented social intervention for toddlers with autism: An RCT. *Pediatrics*, 134(6), 1084-1093. <https://doi.org/10.1542/peds.2014-0757>
78. Whalen, C., Moss, D., Ilan, A. B., Vaupel, M., Fielding, P., Macdonald, K., Cernich, S., & Symon, J. (2010). Efficacy of TeachTown: Basics computer-assisted intervention for the intensive comprehensive autism program in Los Angeles Unified School District. *Autism*, 14(3), 179-197. <https://doi.org/10.1177/1362361310363282>
79. Wong, C. S. (2013). A play and joint attention intervention for teachers of young children with autism: A randomized controlled pilot study. *Autism*, 17(3), 340-357. <https://doi.org/10.1177/1362361312474723>

* indicates articles that are either secondary data analysis or follow-up for an article already included in the list

Name of EBP	Parent-Implemented Intervention (PII)
Definition of EBP	<p>In Parent-Implemented Intervention (PII), parents are the primary person using an intervention practice with their own child. Practitioners teach parents in individual or in group formats in home or community settings. Methods for teaching parents vary, but may include didactic instruction, discussions, modeling, coaching, or performance feedback. The parent's role is to use the intervention practice to teach their child new skills, such as communication, play or self-help, engage their child in social communication and interactions, and/or to decrease challenging behavior. Once parents are trained, they implement all or part of the intervention(s) with their child. Parents are often implementing other EBPs included in this report including naturalistic interventions, video modeling, or social narratives.</p> <ul style="list-style-type: none"> Manualized Interventions Meeting Criteria: Project ImPACT (Improving Parents as Communication Teachers); Stepping Stones Triple P (SSTP)/Primary Care SSTP.

		Age Ranges					
Outcome Areas		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓	✓	
	Social	✓	✓	✓	✓	✓	
	Joint attention	✓	✓				
	Play	✓	✓	✓			
	Cognitive	✓	✓				
	School readiness	✓	✓	✓			
	Academic/ Pre-academic	✓	✓				
	Adaptive/ self-help	✓	✓	✓	✓		
	Challenging/ Interfering behavior	✓	✓	✓	✓	✓	
	Vocational						
	Motor	✓	✓				
	Mental health	✓	✓	✓	✓		
	Self- determination						

References

- Aldred, C., Green, J., & Adams, C. (2004). A new social communication intervention for children with autism: Pilot randomised controlled treatment study suggesting effectiveness. *Journal of Child Psychology and Psychiatry*, 45(8), 1420-1430. <https://doi.org/10.1111/j.1469-7610.2004.00338.x>
- Bearss, K., Johnson, C., Smith, T., Lecavalier, L., Swiezy, N., Aman, M., McAdam, D.B., Butter, E., Stillitano, C., Minshawi, N., Sukhodolsky, D.G., Mruzek, D.W., Turner, K., Neal, T., Hallett, V., Mulick, J.A., Green, B., Handen, B., Yanhong, D., & Dziura, J. (2015). Effect of parent training vs parent education on behavioral problems in children with autism spectrum disorder. *Journal of the American Medical Association*, 313(15), 1524-1533. <https://doi.org/10.1001/jama.2015.3150>
- Besler, F., & Kurt, O. (2016). Effectiveness of video modeling provided by mothers in teaching play skills to children with autism. *Education Sciences: Theory and Practice*, 16(1), 209-230. <https://doi.org/10.12738/estp.2016.1.0273>

4. *Bradshaw, J., Bearss, K., McCracken, C., Smith, T., Johnson, C., Lecavalier, L., Swiezy, N., & Scahill, L. (2017). Parent education for young children with autism and disruptive behavior: Response to active control treatment. *Journal of Clinical Child and Adolescent Psychology, 47*(S1), S445-S455. <https://doi.org/10.1080/15374416.2017.1381913>
5. Cardon, T. A. (2012). Teaching caregivers to implement video modeling imitation training via iPad for their children with autism. *Research in Autism Spectrum Disorders, 6*(4), 1389-1400. <https://doi.org/10.1016/j.rasd.2012.06.002>
6. Casenhiser, D. M., Binns, A., McGill, F., Morderer, O., & Shanker, S. G. (2015). Measuring and supporting language function for children with autism: Evidence from a randomized control trial of a social-interaction-based therapy. *Journal of Autism and Developmental Disorders, 45*(3), 846-857. <https://doi.org/10.1007/s10803-014-2242-3>
7. Casenhiser, D. M., Shanker, S. G., & Stieben, J. (2013). Learning through interaction in children with autism: Preliminary data from a social-communication-based intervention. *Autism, 17*(2), 220-241. <https://doi.org/10.1177/1362361311422052>
8. Cheremshynski, C., Lucyshyn, J. M., & Olson, D. L. (2013). Implementation of a culturally appropriate positive behavior support plan with a Japanese mother of a child with autism: An experimental and qualitative analysis. *Journal of Positive Behavior Interventions, 15*(4), 242-253. <https://doi.org/10.1177/1098300712459904>
9. Chiang, C. H., Chu, C. L., & Lee, T. C. (2016). Efficacy of caregiver-mediated joint engagement intervention for young children with autism spectrum disorders. *Autism: The International Journal of Research and Practice, 20*(2), 172-82. <https://doi.org/10.1177/1362361315575725>
10. Delemere, E., & Dounavi, K. (2017). Parent-implemented bedtime fading and positive routines for children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 48*, 1002-1019. <https://doi.org/10.1007/s10803-017-3398-4>
11. Fettig, A., Schultz, T. R., & Sreckovic, M. A. (2015). Effects of coaching on the implementation of functional assessment-based parent intervention in reducing challenging behaviors. *Journal of Positive Behavior Interventions, 17*(3), 170-180. <https://doi.org/10.1177/1098300714564164>
12. Grahame, V., Brett, D., Dixon, L., McConachie, H., Lowry, J., Rodgers, J., Steen, N., & Le Couteur, A. (2015). Managing repetitive behaviours in young children with autism spectrum disorder (ASD): Pilot randomised controlled trial of a new parent group intervention. *Journal of Autism and Developmental Disorders, 45*(10), 3168-3182. <https://doi.org/10.1007/s10803-015-2474-x>
13. Green, J., Charman, T., McConachie, H., Aldred, C., Slonims, V., Howlin, P., LeCouteur, A., Leadbitter, K., Byford, S., Barrett, B., Temple, K., Macdonald, W., & Pickles, A. (2010). Parent-mediated communication-focused treatment in children with autism (PACT): A randomised controlled trial. *Lancet, 375*(9732), 2152-2160. [https://doi.org/10.1016/S0140-6736\(10\)60587-9](https://doi.org/10.1016/S0140-6736(10)60587-9)
14. Hardan, A. Y., Gengoux, G. W., Berquist, K. L., Libove, R. A., Ardel, C. M., Phillips, J., Frazier, T. W., & Minjarez, M. B. (2015). A randomized controlled trial of Pivotal Response Treatment Group for parents of children with autism. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 56*(8), 884-892. <https://doi.org/10.1111/jcpp.12354>
15. *Harrop, C., Gulsrud, A., Shih, W., Hovsepyan, L., & Kasari, C. (2017). The impact of caregiver-mediated JASPER on child restricted and repetitive behaviors and caregiver responses. *Autism Research, 10*(5), 983-992. <https://doi.org/10.1002/aur.1732>
16. Hsieh, H. H., Wilder, D. A., & Abellon, O. E. (2011). The effects of training on caregiver implementation of incidental teaching. *Journal of Applied Behavior Analysis, 44*(1), 199-203. <https://doi.org/10.1901/jaba.2011.44-199>
17. Ingersoll, B., Wainer, A. L., Berger, N. I., Pickard, K. E., & Bonter, N. (2016). Comparison of a self-directed and therapist-assisted telehealth parent-mediated intervention for children with ASD: A pilot RCT. *Journal of Autism and Developmental Disorders, 46*(7), 2275-2284. <https://doi.org/10.1007/s10803-016-2755-z>
18. Kaiser, A. P., Hancock, T. B., & Nietfeld, J. P. (2000). The effects of parent-implemented enhanced milieu teaching on the social communication of children who have autism. *Early Education and Development, 11*(4), 423-446. https://doi.org/10.1207/s15566935eed1104_4
19. Kasari, C., Gulsrud, A., Paparella, T., Helleman, G., & Berry, K. (2015). Randomized comparative efficacy study of parent-mediated interventions for toddlers with autism. *Journal of Consulting and Clinical Psychology, 83*(3), 554-563. <https://doi.org/10.1037/a0039080>
20. Kasari, C., Gulsrud, A. C., Wong, C., Kwon, S., & Locke, J. (2010). Randomized controlled caregiver mediated joint engagement intervention for toddlers with autism. *Journal of Autism and Developmental Disorders, 40*(9), 1045-1056. <https://doi.org/10.1007/s10803-010-0955-5>
21. Kasari, C., Lawton, K., Shih, W., Barker, T. V., Landa, R., Lord, C., Orlich, F., King, B., Wetherby, A., & Senturk, D. (2014). Caregiver-mediated intervention for low-resourced preschoolers with autism: an RCT. *Pediatrics, 134*(1), 72-79. <https://doi.org/10.1542/peds.2013-3229>
22. Krantz, P. J., MacDuff, M. T., & McClannahan, L. E. (1993). Programming participation in family activities for children with autism: Parents' use of photographic activity schedules. *Journal of Applied Behavior Analysis, 26*(1), 137-138. <https://doi.org/10.1901/jaba.1993.26-137>
23. Kurtz, P. F., Chin, M. D., Robinson, A. N., O'Connor, J. T., & Hagopian, L. P. (2015). Functional analysis and treatment of problem behavior exhibited by children with fragile X syndrome. *Research in Developmental Disabilities, 43*-44, 150-166. <https://doi.org/10.1016/j.ridd.2015.06.010>
24. Lanovaz, M. J., Rapp, J. T., Maciwi, I., Dorion, C., & Prgent-Pelletier, E. (2016). Preliminary effects of parent-implemented behavioural interventions for stereotypy. *Developmental Neurorehabilitation, 19*(3), 193-196. <https://doi.org/10.3109/17518423.2014.986821>
25. Law, G. C., Neihart, M., & Dutt, A. (2017). The use of behavior modeling training in a mobile app parent training program to improve functional communication of young children with autism spectrum disorder. *Autism, 22*(4), 424-439. <https://doi.org/10.1177/1362361316683887>
26. Liu, Y., Moore, D. W., & Anderson, A. (2015). Improving social skills in a child with autism spectrum disorder through self-management training. *Behaviour Change, 32*(4), 273-284. <https://doi.org/10.1017/bec.2015.14>
27. Meadan, H., Snodgrass, M. R., Meyer, L. E., Fisher, K. W., Chung, M. Y., & Halle, J. W. (2016). Internet-based parent-implemented intervention for young children with autism: A pilot study. *Journal of Early Intervention, 38*(1), 43913. <https://doi.org/10.1177/1053815116630327>
28. Moran, D. R., & Whitman, T. L. (1991). Developing generalized teaching skills in mothers of autistic children. *Child & Family Behavior Therapy, 13*(1), 13-37. https://doi.org/10.1300/J019v13n01_02
29. Najdowski, A. C., Wallace, M. D., Reagon, K., Penrod, B., Higbee, T. S., & Tarbox, J. (2010). Utilizing a home-based parent training approach in the treatment of food selectivity. *Behavioral Interventions, 25*(2), 89-107. <https://doi.org/10.1002/bin.298>
30. Olcay-Gul, S., & Tekin-lftar, E. (2016). Family generated and delivered social story intervention: Acquisition, maintenance, and generalization of social skills in youths with ASD. *Education and Training in Autism and Developmental Disabilities, 51*(1), 67-78.

31. Oliver, P., & Brady, M. P. (2014). Effects of covert audio coaching on parents' interactions with young children with Autism. *Behavior Analysis in Practice*, 7(2), 112-6. <https://doi.org/10.1007/s40617-014-0015-2>
32. Papadopoulos, N., Sciberras, E., Hiscock, H., Mulraney, M., McGillivray, J., & Rinehart, N. (2015). The efficacy of a brief behavioral sleep intervention in school-aged children with ADHD and comorbid autism spectrum disorder. *Journal of Attention Disorders*, 23(4), 341-350. <https://doi.org/10.1177/1087054714568565>
33. *Pickles, A., Le Couteur, A., Leadbitter, K., Salomone, E., Cole-Fletcher, R., Tobin, H., Gammer, I., Lowry, J., Vamvakas, G., Byford, S., Aldred, C., Slonims, V., McConachie, H., Howlin, P., Parr, J. R., Charman, T., & Green, J. (2016). Parent-mediated social communication therapy for young children with autism (PACT): Long-term follow-up of a randomised controlled trial. *The Lancet*, 388(10059), 2501-2509. [https://doi.org/10.1016/s0140-6736\(16\)31229-6](https://doi.org/10.1016/s0140-6736(16)31229-6)
34. Poslawsky, I. E., Naber, F. B., Bakermans-Kranenburg, M. J., van Daalen, E., van Engeland, H., & van IJzendoorn, M. H. (2015). Video-feedback intervention to promote positive parenting adapted to autism (VIPP-AUTI): A randomized controlled trial. *Autism*, 19(5), 588-603. <https://doi.org/10.1177/1362361314537124>
35. Rahman, A., Divan, G., Hamdani, S. U., Vajaratkar, V., Taylor, C., Leadbitter, K., Aldred, C., Minhas, A., Cardozo, P., Emsley, R., Patel, V., & Green, J. (2016). Effectiveness of the parent-mediated intervention for children with autism spectrum disorder in south Asia in India and Pakistan (PASS): A randomised controlled trial. *Lancet Psychiatry*, 3(2), 128-136. [https://doi.org/10.1016/s2215-0366\(15\)00388-0](https://doi.org/10.1016/s2215-0366(15)00388-0)
36. Reagon, K. A., & Higbee, T. S. (2009). Parent-implemented script fading to promote play-based verbal initiations in children with autism. *Journal of Applied Behavior Analysis*, 42(3), 659-664. <https://doi.org/10.1901/jaba.2009.42-659>
37. Robertson, R. E., Wehby, J. H., & King, S. M. (2013). Increased parent reinforcement of spontaneous requests in children with autism spectrum disorder: effects on problem behavior. *Research in Developmental Disabilities*, 34(3), 1069-82. <https://doi.org/10.1016/j.ridd.2012.12.011>
38. Rocha, M. L., Schreibman, L., & Stahmer, A. C. (2007). Effectiveness of training parents to teach joint attention in children with autism. *Journal of Early Intervention*, 29(2), 154-172. <https://doi.org/10.1177/105381510702900207>
39. Rollins, P. R., Campbell, M., Hoffman, R. T., & Self, K. (2016). A community-based early intervention program for toddlers with autism spectrum disorders. *Autism*, 20(2), 219-32. <https://doi.org/10.1177/1362361315577217>
40. *Scahill, L., Bearss, K., Lecavalier, L., Smith, T., Swiezy, N., Aman, M. G., Sukhodolsky, D. G., McCracken, C., Minshawi, N., Turner, K., Levato, L., Saulnier, C., Dziura, J., & Johnson, C. (2016). Effect of parent training on adaptive behavior in children with autism spectrum disorder and disruptive behavior: Results of a randomized trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, 55(7), 602-609. <https://doi.org/10.1016/j.jaac.2016.05.001>
41. Schertz, H. H., & Odom, S. L. (2007). Promoting joint attention in toddlers with autism: A parent-mediated developmental model. *Journal of Autism and Developmental Disorders*, 37(8), 1562-1575. <https://doi.org/10.1007/s10803-006-0290-z>
42. Schertz, H. H., Odom, S. L., Baggett, K. M., & Sideris, J. H. (2013). Effects of joint attention mediated learning for toddlers with autism spectrum disorders: An initial randomized controlled study. *Early Childhood Research Quarterly*, 28(2), 249-258. <https://doi.org/10.1016/j.jecresq.2012.06.006>
43. Schertz, H. H., Odom, S. L., Baggett, K. M., & Sideris, J. H. (2017). Mediating parent learning to promote social communication for toddlers with autism: Effects from a randomized controlled trial. *Journal of Autism and Developmental Disorders*, 48(3), 853-867. <https://doi.org/10.1007/s10803-017-3386-8>
44. Seiverling, L., Williams, K., Sturmey, P., & Hart, S. (2012). Effects of behavioral skills training on parental treatment of children's food selectivity. *Journal of Applied Behavior Analysis*, 45(1), 197-203. <https://doi.org/10.1901/jaba.2012.45-197>
45. Siller, M., Hutman, T., & Sigman, M. (2013). A parent-mediated intervention to increase responsive parental behaviors and child communication in children with ASD: A randomized clinical trial. *Journal of Autism and Developmental Disorders*, 43(3), 540-555. <https://doi.org/10.1007/s10803-012-1584-y>
46. Siller, M., Swanson, M., Gerber, A., Hutman, T., & Sigman, M. (2014). A parent-mediated intervention that targets responsive parental behaviors increases attachment behaviors in children with ASD: results from a randomized clinical trial. *Journal of Autism and Developmental Disorders*, 44(7), 1720-1732. <https://doi.org/10.1007/s10803-014-2049-2>
47. Solomon, R., Van Egeren, L. A., Mahoney, G., Quon Huber, M. S., & Zimmerman, P. (2014). PLAY project home consultation intervention program for young children with autism spectrum disorders: A randomized controlled trial. *Journal of Developmental and Behavioral Pediatrics*, 35(8), 475-485. <https://doi.org/10.1097/DBP.0000000000000096>
48. Stadnick, N. A., Stahmer, A., & Brookman-Frazee, L. (2015). Preliminary Effectiveness of project ImPACT: A parent-mediated intervention for children with autism spectrum disorder delivered in a community program. *Journal of Autism and Developmental Disorders*, 45(7), 2092-2104. <https://doi.org/10.1007/s10803-015-2376-y>
49. Stiebel, D. (1999). Promoting augmentative communication during daily routines: A parent problem-solving intervention. *Journal of Positive Behavior Interventions*, 1(3), 159-169. <https://doi.org/10.1177/109830079900100304>
50. Tarbox, J., Wallace, M. D., & Tarbox, R. S. (2002). Successful generalized parent training and failed schedule thinning of response blocking for automatically maintained object mouthing. *Behavioral Interventions*, 17(3), 169-178. <https://doi.org/10.1002/bin.116>
51. Tellegen, C. L., & Sanders, M. R. (2014). A randomized controlled trial evaluating a brief parenting program with children with autism spectrum disorders. *Journal of Consulting and Clinical Psychology*, 82(6), 1193-200. <https://doi.org/10.1037/a0037246>
52. Tonge, B., Brereton, A., Kiomall, M., Mackinnon, A., & Rinehart, N. J. (2014). A randomised group comparison controlled trial of 'preschoolers with autism: A parent education and skills training intervention for young children with autistic disorder. *Autism*, 18(2), 166-77. <https://doi.org/10.1177/1362361312458186>
53. Turner-Brown, L., Hume, K., Boyd, B. A., & Kainz, K. (2016). Preliminary efficacy of family implemented TEACCH for toddlers: Effects on parents and their toddlers with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 49(7), 2685-2698. <https://doi.org/10.1007/s10803-016-2812-7>

54. Venker, C. E., McDuffie, A., Ellis Weismer, S., & Abbeduto, L. (2012). Increasing verbal responsiveness in parents of children with autism: A pilot study. *Autism, 16*(6), 568-585. <https://doi.org/10.1177/1362361311413396>
55. Vernon, T. W., Koegel, R. L., Dauterman, H., & Stolen, K. (2012). An early social engagement intervention for young children with autism and their parents. *Journal of Autism and Developmental Disorders, 42*(12), 2702-17. <https://doi.org/10.1007/s10803-012-1535-7>
56. Wang, H. T. (2017). Utilizing primary tier intervention to enhance reciprocal turn-taking of children with autism in Taiwan. *Education and Training in Autism Developmental Disabilities, 52*(1), 64-76.
57. Wetherby, A. M., Guthrie, W., Woods, J., Schatschneider, C., Holland, R. D., Morgan, L., & Lord, C. (2014). Parent-implemented social intervention for toddlers with autism: An RCT. *Pediatrics, 134*(6), 1084-1093. <https://doi.org/10.1542/peds.2014-0757>
58. Whitehouse, A. J. O., Granich, J., Alvares, G., Busacca, M., Cooper, M. N., Dass, A., Duong, T., Harper, R., Marshall, W., Richdale, A., Rodwell, T., Trembath, D., Vellanki, P., Moore, D. W., & Anderson, A. (2017). A randomised controlled trial of an iPad-based application to complement early behavioural intervention in Autism Spectrum Disorder. *Journal of Child Psychology and Psychiatry, 58*(9), 1042-1052. <https://doi.org/10.1111/jcpp.12752>
59. Zand, D. H., Bultas, M. W., McMillin, S. E., Halloran, D., White, T., McNamara, D., & Pierce, K. J. (2017). A pilot of a brief positive parenting program on children newly diagnosed with autism spectrum disorder. *Family Process, 57*(4). <https://doi.org/10.1111/famp.12334>

* indicates articles that are either secondary data analysis or follow-up for an article already included in the list

Name of EBP	Peer-Based Instruction and Intervention (PBII)
Definition of EBP	In Peer-Based Instruction and Intervention (PBII) peer social interaction is the defining feature of the intervention. Most often but not always, the peer of the learner is a neurotypical child of the same general age. There are two types of PBII, which are characterized by the role of the peer and the teacher. In peer-mediated instruction and interventions (PMIIs), the peer receives training and perhaps coaching from an adult (e.g., teacher, clinician) to deliver social initiations or instructions in a way that supports the learning goal of the learner with autism. In a variation of this approach, a sibling of the learner may serve in the peer role (e.g., sibling-mediated intervention), but the procedures are the same. In adult-mediated instruction and interventions (AMII) the teacher or other adults arranges the social environment (e.g. brings children in proximity) and provides coaching, prompts, and/or reinforcement for both the learner and the peer to engage in social interaction.

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓	✓	✓	
	Social		✓	✓	✓	✓	
	Joint attention		✓	✓			
	Play		✓	✓	✓		
	Cognitive			✓	✓		
	School readiness		✓	✓			
	Academic/ Pre-academic			✓	✓	✓	
	Adaptive/ self-help						
	Challenging/ Interfering behavior			✓			
	Vocational						
	Motor						
	Mental health			✓	✓		
	Self- determination						

References

- Bambara, L. M., Cole, C. L., Kunsch, C., Tsai, S. C., & Ayad, E. (2016). A peer-mediated intervention to improve the conversational skills of high school students with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 27, 29-43. <https://doi.org/10.1016/j.rasd.2016.03.003>
- Barber, A. B., Saffo, R. W., Gilpin, A. T., Craft, L. D., & Goldstein, H. (2016). Peers as clinicians: Examining the impact of Stay Play Talk on social communication in young preschoolers with autism. *Journal of Communication Disorders*, 59, 1-15. <https://doi.org/10.1016/j.jcomdis.2015.06.009>
- Brock, M. E., Dueker, S. A., & Barczak, M. A. (2017). Brief report: Improving social outcomes for students with autism at recess through peer-mediated pivotal response training. *Journal of Autism and Developmental Disorders*, 48(6), 2224-2230. <https://doi.org/10.1007/s10803-017-3435-3>
- Carr, E. J. & Darcy, M. (1990). Setting generality of peer modeling in children with autism. *Journal of Autism and Developmental Disorders*, 20(1), 45-59. <https://doi.org/10.1007/BF02206856>
- Carter, E. W., Cushing, L. S., Clark, N. M., & Kennedy, C. H. (2005). Effects of peer support interventions on students' access to the general curriculum and social interactions. *Research and Practice for Persons with Severe Disabilities*, 30(1), 15-25. <https://doi.org/10.2511/rpsd.30.1.15>

6. Corbett, B. A., Blain, S. D., Ioannou, S., & Balser, M. (2017). Changes in anxiety following a randomized control trial of a theatre-based intervention for youth with autism spectrum disorder. *Autism: The International Journal of Research and Practice*, 21(3), 333-343. <https://doi.org/10.1177/1362361316643623>
7. Corbett, B. A., Key, A. P., Qualls, L., Fecteau, S., Newsom, C., Coke, C., & Yoder, P. (2016). Improvement in social competence using a randomized trial of a theatre intervention for children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 46(2), 658-672. <https://doi.org/10.1007/s10803-015-2600-9>
8. Dugan, E., Kamps, D., Leonard, B., Watkins, N., Rheinberger, A., & Stackhaus, J. (1995). Effects of cooperative learning groups during social studies for students with autism and fourth-grade peers. *Journal of Applied Behavior Analysis*, 28(2), 175-188. <https://doi.org/10.1901/jaba.1995.28-175>
9. Gardner, K. F., Carter, E. W., Gustafson, J. R., Hochman, J. M., Harvey, M. N., Mullins, T. S., & Fan, H. (2014). Effects of peer networks on the social interactions of high school students with autism spectrum disorders. *Research & Practice for Persons with Severe Disabilities*, 39(2), 100-118. <https://doi.org/10.1177/1540796914544550>
10. Halle, S., Ninness, C., Ninness, S. K., & Lawson, D. (2016). Teaching social skills to students with autism: A video modeling social stories approach. *Behavior and Social Issues*, 25, 42-54. <https://doi.org/10.5210/bsi.v25i0.6190>
11. Hochman, J. M., Carter, E. W., Bottema-Beutel, K., Harvey, M. N., & Gustafson, J. R. (2015). Efficacy of peer networks to increase social connections among high school students with and without autism spectrum disorder. *Exceptional Children*, 82(1), 96-116. <https://doi.org/10.1177/0014402915585482>
12. Hughes, C., Harvey, M., Cosgriff, J., Reilly, C., Heilingoetter, J., Brigham, N., Kaplan, L., & Bernstein, R. (2013). A peer-delivered social interaction intervention for high school students with autism. *Research & Practice for Persons with Severe Disabilities*, 38(1), 438-446. <https://doi.org/10.2511/027494813807046999>
13. Kamps, D. M., Barbetta, P. M., Leonard, B. R., & Delquadri, J. (1994). Classwide peer tutoring: An integration strategy to improve reading skills and promote peer interactions among students with autism and general education peers. *Journal of Applied Behavior Analysis*, 27(1), 49-61. <https://doi.org/10.1901/jaba.1994.27-49>
14. Kamps, D., Mason, R., Thiemann-Bourque, K., Feldmiller, S., Turcotte, A., & Miller, T. (2014). The use of peer networks to increase communicative acts of students with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities*, 29(4), 230-245. <https://doi.org/10.1177/1088357614539832>
15. Kamps, D. M., Potucek, J., Lopez, A. G., Kravits, T., & Kemmerer, K. (1997). The use of peer networks across multiple settings to improve social interaction for students with autism. *Journal of Behavioral Education*, 7(3), 335-357. <https://doi.org/10.1023/A:1022879607019>
16. Kamps, D., Thiemann-Bourque, K., Heitzman-Powell, L., Schwartz, I., Rosenberg, N., Mason, R., & Cox, S. (2015). A comprehensive peer network intervention to improve social communication of children with autism spectrum disorders: A randomized trial in kindergarten and first grade. *Journal of Autism and Developmental Disorders*, 45(6), 1809-1824. <https://doi.org/10.1007/s10803-014-2340-2>
17. Kasari, C., Rotheram-Fuller, E., Locke, J., & Gulsrud, A. (2012). Making the connection: Randomized controlled trial of social skills at school for children with autism spectrum disorders. *Journal of Child Psychology and Psychiatry*, 53(4), 431-439. <https://doi.org/10.1111/j.1469-7610.2011.02493.x>
18. Kretzmann, M., Shih, W., & Kasari, C. (2015). Improving peer engagement of children with autism on the school playground: a randomized controlled trial. *Behavior Therapy*, 46(1), 20-28. <https://doi.org/10.1016/j.beth.2014.03.006>
19. Laushey, K. M., & Heflin, L. J. (2000). Enhancing social skills of kindergarten children with autism through the training of multiple peers as tutors. *Journal of Autism and Developmental Disorders*, 30(3), 183-193. <https://doi.org/10.1023/A:1005558101038>
20. Lee, S., Odom, S. L., & Loftin, R. (2007). Social engagement with peers and stereotypic behavior of children with autism. *Journal of Positive Behavior Interventions*, 9(2), 67-79. <https://doi.org/10.1177/10983007070090020401>
21. Legoff, D. B., & Sherman, M. (2006). Long-term outcome of social skills intervention based on interactive LEGO® play. *Autism*, 10(4), 317-329. <https://doi.org/10.1177/1362361306064403>
22. Loftin, R. L., Odom, S. L., & Lantz, J. F. (2008). Social interaction and repetitive motor behaviors. *Journal of Autism and Developmental Disorders*, 38(6), 1124-1135. <https://doi.org/10.1007/s10803-007-0499-5>
23. Loncola, J. A., & Craig-Unkefer, L. (2005). Teaching social communication skills to young urban children with autism. *Education and Training in Developmental Disabilities*, 40(3), 243-263.
24. Lorah, E. R., Gilroy, S. P., & Hineline, P. N. (2014). Acquisition of peer manding and listener responding in young children with autism. *Research in Autism Spectrum Disorders*, 8(2), 61-67. <https://doi.org/10.1016/j.rasd.2013.10.009>
25. Mason, R., Kamps, D., Turcotte, A., Cox, S., Feldmiller, S., & Miller, T. (2014). Peer mediation to increase communication and interaction at recess for students with Autism Spectrum Disorders. *Research in Autism Spectrum Disorders*, 8(3), 334-344. <https://doi.org/10.1016/j.rasd.2013.12.014>
26. McCurdy, E. E., & Cole, C. L. (2014). Use of a peer support intervention for promoting academic engagement of students with autism in general education settings. *Journal of Autism and Developmental Disorders*, 44(4), 883-93. <https://doi.org/10.1007/s10803-013-1941-5>
27. McFadden, B., Kamps, D., & Heitzman-Powell, L. (2014). Social communication effects of peer-mediated recess intervention for children with Autism. *Research in Autism Spectrum Disorders*, 8(12), 1699-1712. <https://doi.org/10.1016/j.rasd.2014.08.015>
28. Mundschenk, N. A., & Sasso, G. M. (1995). Assessing sufficient social exemplars for students with autism. *Behavioral Disorders*, 21(1), 62-78. <https://doi.org/10.1177/019874299502100106>
29. Odom, S. L. (1991). Reducing teacher prompts in peer-mediated interventions for young children with autism. *The Journal of Special Education*, 25(1), 26-43. <https://doi.org/10.1177/002246699102500103>
30. Owen-DeSchryver, J. S., Carr, E. G., Cale, S. I., & Blakeley-Smith, A. (2008). Promoting social interactions between students with autism spectrum disorders and their peers in inclusive school settings. *Focus on Autism and Other Developmental Disabilities*, 23(1), 15-28. <https://doi.org/10.1177/1088357608314370>

31. Owens, G., Granader, Y., Humphrey, A., & Baron-Cohen, S. (2008). LEGO® therapy and the social use of language programme: An evaluation of two social skills interventions for children with high functioning autism and Asperger syndrome. *Journal of Autism and Developmental Disorders*, 38(10), 1944-1957. <https://doi.org/10.1007/s10803-008-0590-6>
32. Paden, A. R., Kodak, T., Fisher, W. W., Gawley-Bullington, E. M., & Boussein, K. J. (2012). Teaching children with autism to engage in peer-directed mands using a picture exchange communication system. *Journal of Applied Behavior Analysis*, 45(2), 425-9. <https://doi.org/10.1901/jaba.2012.45-425>
33. Petursdottir, A. L., McComas, J., McMaster, K., & Horner, K. (2007). The effects of scripted peer tutoring and programming common stimuli on social interactions of a student with autism spectrum disorder. *Journal of Applied Behavior Analysis*, 40(2), 353-357. <https://doi.org/10.1901/jaba.2007.160-05>
34. Pierce, K., & Schreibman, L. (1997). Multiple peer use of pivotal response training to increase social behaviors of classmates with autism: Results from trained and untrained peers. *Journal of Applied Behavior Analysis*, 30(1), 157-160. <https://doi.org/10.1901/jaba.1997.30-157>
35. Radley, K. C., Dart, E. H., Furlow, C. M., & Ness, E. J. (2015). Peer-mediated discrete trial training within a school setting. *Research in Autism Spectrum Disorders*, 9, 53-67. <https://doi.org/10.1016/j.rasd.2014.10.001>
36. Sainato, D. M., Goldstein, H., & Strain, P. S. (1992). Effects of self-evaluation on preschool children's use of social interaction strategies with their classmates with autism. *Journal of Applied Behavior Analysis*, 25(1), 127-141. <https://doi.org/10.1901/jaba.1992.25-127>
37. Schmidt, C., & Stichter, J. P. (2012). The use of peer-mediated interventions to promote the generalization of social competence for adolescents with high-functioning autism and Asperger's syndrome. *Exceptionality*, 20(2), 94-113. <https://doi.org/10.1080/09362835.2012.669303>
38. Simpson, L. A., & Bui, Y. (2016). Effects of a peer-mediated intervention on social interactions of students with low-functioning autism and perceptions of typical peers. *Education and Training in Autism and Developmental Disabilities*, 51(2), 162-178.
39. Sreckovic, M. A., Hume, K., & Able, H. (2017). Examining the efficacy of peer network interventions on the social interactions of high school students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 47(8), 2556-2574. <https://doi.org/10.1007/s10803-017-3171-8>
40. Strasberger, S. K., & Ferreri, S. J. (2014). The effects of peer assisted communication application training on the communicative and social behaviors of children with autism. *Journal of Developmental and Physical Disabilities*, 26(5), 513-526. <https://doi.org/10.1007/s10882-013-9358-9>
41. Thiemann-Bourque, K., Brady, N., McGuff, S., Stump, K., & Naylor, A. (2016). Picture exchange communication system and pals: A peer-mediated augmentative and alternative communication intervention for minimally verbal preschoolers with autism. *Journal of Speech, Language, and Hearing Research*, 59(5), 1133-1145. https://doi.org/10.1044/2016_jslhr-l-15-0313
42. Thiemann-Bourque, K. S., McGuff, S., & Goldstein, H. (2017). Training peer partners to use a speech-generating device with classmates with autism spectrum disorder: Exploring communication outcomes across preschool contexts. *Journal of Speech Language and Hearing Research*, 60(9), 2648-2662. https://doi.org/10.1044/2017_JSLHR-L-17-0049
43. Trembath, D., Balandin, S., Togher, L., & Stancliffe, R. J. (2009). Peer-mediated teaching and augmentative and alternative communication for preschool-aged children with autism. *Journal of Intellectual and Developmental Disability*, 34(2), 173-186. <https://doi.org/10.1080/13668250902845210>
44. Wolfberg, P. J., & Schuler, A. L. (1993). Integrated play groups: A model for promoting the social and cognitive dimensions of play in children with autism. *Journal of Autism and Developmental Disorders*, 23(3), 467-489. <https://doi.org/10.1007/BF01046051>

Name of EBP	Prompting (PP)
Definition of EBP	Prompting (PP) procedures include support given to learners that assist them in using a specific skill. Verbal, gestural, or physical assistance is given to learners to help them in acquiring or engaging in a targeted behavior or skill. Prompts are generally given by an adult or peer before or as a learner attempts to use a skill. These procedures are often used in conjunction with other evidence-based practices including time delay and reinforcement or are part of protocols for the use of other evidence-based practices such as social skills training, discrete trial teaching, and video modeling. Thus, prompting procedures are considered foundational to the use of many other evidence-based practices.

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓	✓	✓
	Social	✓	✓	✓	✓	✓	
	Joint attention	✓	✓	✓	✓		
	Play	✓	✓	✓	✓	✓	
	Cognitive						
	School readiness		✓	✓	✓		✓
	Academic/ Pre-academic		✓	✓	✓	✓	✓
	Adaptive/ self-help		✓	✓	✓	✓	
	Challenging/ Interfering behavior		✓	✓		✓	✓
	Vocational				✓	✓	✓
	Motor	✓	✓	✓			
	Mental health						
	Self-determination						

References

- Ainsworth, M. K., Evmenova, A. S., Behrmann, M., & Jerome, M. (2016). Teaching phonics to groups of middle school students with autism, intellectual disabilities and complex communication needs. *Research in Developmental Disabilities, 56*, 165-76. <https://doi.org/10.1016/j.ridd.2016.06.001>
- Akmanoglu, N., & Batu, S. (2004). Teaching pointing to numerals to individuals with autism using simultaneous prompting. *Education and Training in Developmental Disabilities, 39*(4), 326-336.
- Akmanoglu, N., Kurt, O., & Kapan, A. (2015). Comparison of simultaneous prompting and constant time delay procedures in teaching children with autism the responses to questions about personal information. *Educational Sciences: Theory and Practice, 15*(3), 723-737. <https://doi.org/10.12738/estp.2015.3.2654>
- Albert, K. M., Carbone, V. J., Murray, D. D., Hagerty, M., & Sweeney-Kerwin, E. J. (2012). Increasing the mand repertoire of children with autism through the use of an interrupted chain procedure. *Behavior Analysis in Practice, 5*(2), 65-76. <https://doi.org/10.1007/bf03391825>
- Alison, C., Root, J. R., Browder, D. M., & Wood, L. (2017). Technology-based shared story reading for students with autism who are English-language learners. *Journal of Special Education Technology, 32*(2), 91-101. <https://doi.org/10.1177/0162643417690606>
- Allen, K. D., Burke, R. V., Howard, M. R., Wallace, D. P., & Bowen, S. L. (2012). Use of audio cuing to expand employment opportunities for adolescents with autism spectrum disorders and intellectual disabilities. *Journal of Autism and Developmental Disorders, 42*(11), 2410-9. <https://doi.org/10.1007/s10803-012-1519-7>

7. Anderson, J., & Le, D. D. (2011). Abatement of intractable vocal stereotypy using an overcorrection procedure. *Behavioral Interventions, 26*(2), 134-146. <https://doi.org/10.1002/bin.326>
8. Argott, P. J., Townsend, D. B., & Poulson, C. L. (2017). Acquisition and generalization of complex empathetic responses among children with autism. *Behavior Analysis in Practice, 10*(2), 107-117. <https://doi.org/10.1007/s40617-016-0171-7>
9. *Bailey, B., Arciuli, J., & Stancliffe, R. J. (2017a). Effects of ABRACADABRA instruction on spelling in children with autism spectrum disorder. *Scientific Studies of Reading, 21*(2), 146-164. <https://doi.org/10.1080/10888438.2016.1276183>
10. Bailey, B., Arciuli, J., & Stancliffe, R. J. (2017b). Effects of ABRACADABRA literacy instruction on children with autism spectrum disorder. *Journal of Educational Psychology, 109*(2), 257-268. <https://doi.org/10.1037/edu0000138>
11. Barkaia, A., Stokes, T. F., & Mikiashvili, T. (2017). Intercontinental telehealth coaching of therapists to improve verbalizations by children with autism. *Journal of Applied Behavior Analysis, 50*(3), 582-589. <https://doi.org/10.1002/jaba.391>
12. Barnes, C. S., & Rehfeldt, R. A. (2013). Effects of fluency instruction on selection-based and topography-based comprehension measures. *Research in Autism Spectrum Disorders, 7*(6), 639-647. <https://doi.org/10.1016/j.rasd.2013.02.010>
13. Barton, E. E. (2015). Teaching generalized pretend play and related behaviors to young children with disabilities. *Exceptional Children, 81*(4), 489-506. <https://doi.org/10.1177/0014402914563694>
14. Barton, E. E., & Wolery, M. (2010). Training teachers to promote pretend play in young children with disabilities. *Exceptional Children, 77*(1), 85-106. <https://doi.org/10.1177/001440291007700104>
15. Batchelder, A., McLaughlin, T. F., Weber, K. P., Derby, K. M., & Gow, T. (2009). The effects of hand-over-hand and a dot-to-dot tracing procedure on teaching an autistic student to write his name. *Journal of Developmental and Physical Disabilities, 21*(2), 131-138. <https://doi.org/10.1007/s10882-009-9131-2>
16. Beiers, K., Derby, K.M., & McLaughlin, T. F. (2016). Increasing social interactions using prompts and rewards for adolescents with ASD in an ice hockey practice context. *Educational Research Quarterly, 39*(3), 40-56.
17. Bennett, K. D., Ramasamy, R., & Honsberger, T. (2013). Further examination of covert audio coaching on improving employment skills among secondary students with autism. *Journal of Behavioral Education, 22*(2), 103-119. <https://doi.org/10.1007/s10864-013-9168-2>
18. Bennett, K. D., Ramasamy, R., & Honsberger, T. (2013). The effects of covert audio coaching on teaching clerical skills to adolescents with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 43*(3), 585-93. <https://doi.org/10.1007/s10803-012-1597-6>
19. Birkan, B., McClannahan, L. E., & Krantz, P. J. (2007). Effects of superimposition and background fading on the sight-word reading of a boy with autism. *Research in Autism Spectrum Disorders, 1*(3), 117-125. <https://doi.org/10.1016/j.rasd.2006.08.003>
20. Boussein, K. J., Tiger, J. H., & Fisher, W. W. (2008). A comparison of general and specific instructions to promote task engagement and completion by a young man with Asperger syndrome. *Journal of Applied Behavior Analysis, 41*(1), 113-116. <https://doi.org/10.1901/jaba.2008.41-113>
21. Bremer, E., Balogh, R., & Lloyd, M. (2015). Effectiveness of a fundamental motor skill intervention for 4-year-old children with autism spectrum disorder: A pilot study. *Autism: The International Journal of Research and Practice, 19*(8), 980-991. <https://doi.org/10.1177/1362361314557548>
22. Browder, D. M., Root, J. R., Wood, L., & Allison, C. (2017). Effects of a story-mapping procedure using the iPad on the comprehension of narrative texts by students with autism spectrum disorder. *Focus on Autism Other Developmental Disabilities, 32*(4), 243-255. <https://doi.org/10.1177/1088357615611387>
23. Brown, J. L., Krantz, P. J., McClannahan, L. E., & Poulson, C. L. (2008). Using script fading to promote natural environment stimulus control of verbal interactions among youths with autism. *Research in Autism Spectrum Disorders, 2*(3), 480-497. <https://doi.org/10.1016/j.rasd.2007.08.006>
24. Carlile, K. A., Reeve, S. A., Reeve, K. F., & DeBar, R. M. (2013). Using activity schedules on the iPod touch to teach leisure skills to children with autism. *Education & Treatment of Children, 36*(2), 33-57. <https://doi.org/10.1353/etc.2013.0015>
25. Carlson, B., McLaughlin, T., Derby, K. M., & Blecher, J. (2009). Teaching preschool children with autism and developmental delays to write. *Electronic Journal of Research in Educational Psychology, 7*(1), 225-238. <https://doi.org/10.25115/ejrep.v7i1.1313>
26. Carp, C. L., Peterson, S. P., Arkel, A. J., Petursdottir, A. I., & Ingvarsson, E. T. (2012). A further evaluation of picture prompts during auditory-visual conditional discrimination training. *Journal of Applied Behavior Analysis, 45*(4), 737-751. <https://doi.org/10.1901/jaba.2012.45-737>
27. Cengher, M., Shamoun, K., Moss, P., Roll, D., Feliciano, G., & Fienup, D. M. (2016). A comparison of the effects of two prompt-fading strategies on skill acquisition in children with autism spectrum disorders. *Behavior Analysis in Practice, 9*(2), 115-25. <https://doi.org/10.1007/s40617-015-0096-6>
28. Chou, W., Lee, G. T., & Feng, H. (2016). Use of a behavioral art program to improve social skills of two children with autism spectrum disorders. *Education and Training in Autism and Developmental Disabilities, 51*(2), 195-210.
29. Cihak, D. F., & Foust, J. L. (2008). Comparing number lines and touch points to teach addition facts to students with autism. *Focus on Autism and Other Developmental Disabilities, 23*(3), 131-137. <https://doi.org/10.1177/1088357608318950>
30. Cihak, D. F., & Grim, J. (2008). Teaching students with autism spectrum disorder and moderate intellectual disabilities to use counting-on strategies to enhance independent purchasing skills. *Research in Autism Spectrum Disorders, 2*(4), 716-727. <https://doi.org/10.1016/j.rasd.2008.02.006>
31. Cihak, D. F., Wright, R., Smith, C. C., McMahon, D., & Kraiss, K. (2015). Incorporating functional digital literacy skills as part of the curriculum for high school students with intellectual disability. *Education and Training in Autism and Developmental Disabilities, 50*(2), 155-171.
32. Coe, D., Matson, J., Fee, V., Manikam, R., & Linares, C. (1990). Training nonverbal and verbal play skills to mentally retarded and autistic children. *Journal of Autism and Developmental Disorders, 20*(2), 177-187. <https://doi.org/10.1007/BF02284717>
33. Coleman, M. B., Cherry, R. A., Moore, T. C., Park, Y., & Cihak, D. F. (2015). Teaching sight words to elementary students with intellectual disability and autism: A comparison of teacher-directed versus computer-assisted simultaneous prompting. *Intellectual and developmental disabilities, 53*(3), 196-210. <https://doi.org/10.1352/1934-9556-53.3.196>

34. Delmolino, L., Hansford, A. P., Bamond, M. J., Fiske, K. E., & Larue, R. H. (2013). The use of instructive feedback for teaching language skills to children with autism. *Research in Autism Spectrum Disorders, 7*(6), 648-661. <https://doi.org/10.1016/j.rasd.2013.02.015>
35. DeQuinzio, J. A., Townsend, D. B., & Poulson, C. L. (2008). The effects of forward chaining and contingent social interaction on the acquisition of complex sharing responses by children with autism. *Research in Autism Spectrum Disorders, 2*(2), 264-275. <https://doi.org/10.1016/j.rasd.2007.06.006>
36. Dixon, M. R., Peach, J., Daar, J. H., & Penrod, C. (2017). Teaching complex verbal operants to children with autism and establishing generalization using the peak curriculum. *Journal of Applied Behavior Analysis, 50*(2), 317-331. <https://doi.org/10.1002/jaba.373>
37. Dotto-Fojut, K. M., Reeve, K. F., Townsend, D. B., & Progar, P. R. (2011). Teaching adolescents with autism to describe a problem and request assistance during simulated vocational tasks. *Research in Autism Spectrum Disorders, 5*(2), 826-833. <https://doi.org/10.1016/j.rasd.2010.09.012>
38. Ebanks, M. E., & Fisher, W. W. (2003). Altering the timing of academic prompts to treat destructive behavior maintained by escape. *Journal of Applied Behavior Analysis, 36*(3), 355-359. <https://doi.org/10.1901/jaba.2003.36-355>
39. Endicott, K., & Higbee, T. S. (2007). Contriving motivating operations to evoke mands for information in preschoolers with autism. *Research in Autism Spectrum Disorders, 1*(3), 210-217. <https://doi.org/10.1016/j.rasd.2006.10.003>
40. Feng, H., Chou, W. C., & Lee, G. T. (2017). Effects of tact prompts on acquisition and maintenance of divergent intraverbal responses by a child with autism. *Focus Autism Other Developmental Disabilities, 32*(2), 133-141. <https://doi.org/10.1177/1088357615610540>
41. Fentress, G. M., & Lerman, D. C. (2012). A comparison of two prompting procedures for teaching basic skills to children with autism. *Research in Autism Spectrum Disorders, 6*(3), 1083-1090. <https://doi.org/10.1016/j.rasd.2012.02.006>
42. Finke, E. H., Davis, J. M., Benedict, M., Goga, L., Kelly, J., Palumbo, L., Peart, T., & Waters, S. (2017). Effects of a least-to-most prompting procedure on multisymbol message production in children with autism spectrum disorder who use augmentative and alternative communication. *American Journal of Speech Language Pathology, 26*(1), 81-98. https://doi.org/10.1044/2016_AJSLP-14-0187
43. Fischer, J. L., Howard, J. S., Sparkman, C. R., & Moore, A. G. (2010). Establishing generalized syntactical responding in young children with autism. *Research in Autism Spectrum Disorders, 4*(1), 76-88. <https://doi.org/10.1016/j.rasd.2009.07.009>
44. Fleury, V. P., Miramontez, S. H., Hudson, R. F., & Schwartz, I. S. (2014). Promoting active participation in book reading for pre-schoolers with Autism Spectrum Disorders: A preliminary study. *Child Language Teaching and Therapy, 30*(3), 273-288. <https://doi.org/10.1177/0265659013514069>
45. Frampton, S. E., Wymer, S. C., Hansen, B., & Shillingsburg, M. A. (2016). The use of matrix training to promote generative language with children with autism. *Journal of Applied Behavior Analysis, 49*(4), 869-883. <https://doi.org/10.1002/jaba.340>
46. Ganz, J. B., Boles, M. B., Goodwyn, F. D., & Flores, M. M. (2014). Efficacy of handheld electronic visual supports to enhance vocabulary in children with ASD. *Focus on Autism and Other Developmental Disabilities, 29*(1), 43902. <https://doi.org/10.1177/1088357613504991>
47. Garcia-Albea, E., Reeve, S. A., Brothers, K. J., & Reeve, K. F. (2014). Using audio script fading and multiple-exemplar training to increase vocal interactions in children with autism. *Journal of Applied Behavior Analysis, 47*(2), 325-343. <https://doi.org/10.1002/jaba.125>
48. Gena, A. (2006). The effects of prompting and social reinforcement on establishing social interactions with peers during the inclusion of four children with autism in preschool. *International Journal of Psychology, 41*(6), 541-554. <https://doi.org/10.1080/00207590500492658>
49. Gengoux, G. W. (2015). Priming for social activities: Effects on interactions between children with autism and typically developing peers. *Journal of Positive Behavior Interventions, 17*(3), 181-192. <https://doi.org/10.1177/1098300714561862>
50. Gilley, C., & Ringdahl, J. E. (2014). The effects of item preference and token reinforcement on sharing behavior exhibited by children with autism spectrum disorder. *Research in Autism Spectrum Disorders, 8*(11), 1425-1433. <https://doi.org/10.1016/j.rasd.2014.07.010>
51. Goldstein, H. & Cisar, C. L. (1992). Promoting interaction during sociodramatic play: Teaching scripts to typical preschoolers and classmates with disabilities. *Journal of Applied Behavior Analysis, 25*(3), 265-280. <https://doi.org/10.1901/jaba.1992.25-265>
52. Greenberg, J. H., Lau, W., & Lau, S. (2016). Teaching appropriate play to replace stereotypy using a treatment package with students having autism. *Global Education Review, 3*(3), 94-104.
53. Groskreutz, N. C., Groskreutz, M. P., & Higbee, T. S. (2011). Effects of varied levels of treatment integrity on appropriate toy manipulation in children with autism. *Research in Autism Spectrum Disorders, 5*(4), 1358-1369. <https://doi.org/10.1016/j.rasd.2011.01.018>
54. Hadwin, J., Baron-Cohen, S., Howlin, P., & Hill, K. (1996). Can we teach children with autism to understand emotions, belief, or pretence? *Development and Psychopathology, 8*(2), 345-365. <https://doi.org/10.1017/S0954579400007136>
55. Harris, S. L., Handleman, J. S., & Alessandri, M. (1990). Teaching youths with autism to offer assistance. *Journal of Applied Behavior Analysis, 23*(3), 297-305. <https://doi.org/10.1901/jaba.1990.23-297>
56. Hudson, R. F., Sanders, E. A., Greenway, R., Xie, S., Smith, M., Gasamis, C., Martini, J., Schwartz, I., & Hackett, J. (2017). Effects of emergent literacy interventions for preschoolers with autism spectrum disorder. *Exceptional Children, 84*(1), 55-75. <https://doi.org/10.1177/0014402917705855>
57. Humphreys, T., Polick, A. S., Howk, L. L., Thaxton, J. R., & Ivancic, A. P. (2013). An evaluation of repeating the discriminative stimulus when using least-to-most prompting to teach intraverbal behavior to children with autism. *Journal of Applied Behavior Analysis, 46*(2), 534-8. <https://doi.org/10.1002/jaba.43>
58. Iadarola, S., Shih, W., Dean, M., Blanch, E., Harwood, R., Hetherington, S., Mandell, D., Kasari, C., & Smith, T. (2018). Implementing a manualized, classroom transition intervention for students with ASD in underresourced schools. *Behavior Modification, 42*(1), 126-147. <https://doi.org/10.1177/0145445517711437>
59. Ingvarsson, E. T., & Hollibaugh, T. (2011). A comparison of prompting tactics to establish intraverbals in children with autism. *Journal of Applied Behavior Analysis, 44*(3), 659-664. <https://doi.org/10.1901/jaba.2011.44-659>
60. Ingvarsson, E. T., & Le, D. D. (2011). Further evaluation of prompting tactics for establishing intraverbal responding in children with autism. *The Analysis of Verbal Behavior, 27*(1), 75. <https://doi.org/10.1007/bf03393093>
61. Jimenez, B. A., & Kemmerly, M. (2013). Building the early numeracy skills of students with moderate intellectual disability. *Education and Training in Autism and Developmental Disabilities, 48*(4), 479-490.

62. Jones, A. S., & Zarcone, J. R. (2014). Comparison of prompting strategies on two types of tasks with children diagnosed with autism spectrum disorders. *Behavior Analysis in Practice*, 7(2), 51-60. <https://doi.org/10.1007/s40617-014-0010-7>
63. Kaplan-Reimer, H., Sidener, T. M., Reeve, K. F., & Sidener, D. W. (2011). Using stimulus control procedures to teach indoor rock climbing to children with autism. *Behavioral Interventions*, 26(1), 43852. <https://doi.org/10.1002/bin.315>
64. Knight, V. F., Smith, B. R., Spooner, F., & Browder, D. (2012). Using explicit instruction to teach science descriptors to students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 42(3), 378-89. <https://doi.org/10.1007/s10803-011-1258-1>
65. Knox, M., Rue, H. C., Wildenger, L., Lamb, K., & Luiselli, J. K. (2012). Intervention for food selectivity in a specialized school setting: Teacher implemented prompting, reinforcement, and demand fading for an adolescent student with autism. *Education & Treatment of Children*, 35(3), 407-417. <https://doi.org/10.1353/etc.2012.0016>
66. Kodak, T., Paden, A., & Dickes, N. (2012). Training and generalization of peer-directed mands with non-vocal children with autism. *The Analysis of Verbal Behavior*, 28(1), 119-24.
67. Koegel, R. L., Shirotova, L., & Koegel, L. K. (2009). Brief report: Using individualized orienting cues to facilitate first-word acquisition in non-responders with autism. *Journal of Autism and Developmental Disorders*, 39(2), 1587-1592. <https://doi.org/10.1007/s10803-009-0765-9>
68. Krantz, P. J., & McClannahan, L. E. (1993). Teaching children with autism to initiate to peers: Effects of a script-fading procedure. *Journal of Applied Behavior Analysis*, 26(1), 121-132. <https://doi.org/10.1901/jaba.1993.26-121>
69. Krstovska-Guerrero, I., & Jones, E. A. (2016). Social-communication intervention for toddlers with Autism Spectrum Disorder: Eye gaze in the context of requesting and joint attention. *Journal of Developmental and Physical Disabilities*, 28(2), 289-316. <https://doi.org/10.1007/s10882-015-9466-9>
70. Kryzak, L. A., Bauer, S., Jones, E. A., & Sturmey, P. (2013). Increasing responding to others' joint attention directives using circumscribed interests. *Journal of Applied Behavior Analysis*, 46(3), 674-9. <https://doi.org/10.1002/jaba.73>
71. Kryzak, L. A., & Jones, E. A. (2015). The effect of prompts within embedded circumscribed interests to teach initiating joint attention in children with autism spectrum disorders. *Journal of Developmental and Physical Disabilities*, 27(3), 265-284. <https://doi.org/10.1007/s10882-014-9414-0>
72. Lambert, J. M., Copeland, B. A., Karp, E. L., Finley, C. I., Houchins-Juarez, N. J., & Ledford, J. R. (2016). Chaining functional basketball sequences (with embedded conditional discriminations) in an adolescent with autism. *Behavior Analysis in Practice*, 9(3), 199-210. <https://doi.org/10.1007/s40617-016-0125-0>
73. Lang, R., Machalicek, W., Rispoli, M., O'Reilly, M., Sigafoos, J., Lancioni, G., Peters-Scheffer, N., & Didden, R. (2014). Play skills taught via behavioral intervention generalize, maintain, and persist in the absence of socially mediated reinforcement in children with autism. *Research in Autism Spectrum Disorders*, 8(7), 860-872. <https://doi.org/10.1016/j.rasd.2014.04.007>
74. Latham, S. O., & Stockman, I. J. (2014). Effect of augmented sensorimotor input on learning verbal and nonverbal tasks among children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 44(6), 1288-1302. <https://doi.org/10.1007/s10803-013-1990-9>
75. Leaf, J. B., Leaf, J. A., Alcalay, A., Kassardjian, A., Tsuji, K., Dale, S., Ravid, D., Taubman, M., McEachin, J., & Leaf, R. (2016). Comparison of most-to-least prompting to flexible prompt fading for children with autism spectrum disorder. *Exceptionality*, 24(2), 109-122. <https://doi.org/10.1080/09362835.2015.1064419>
76. Leaf, J. B., Leaf, R., Taubman, M., McEachin, J., & Delmolino, L. (2014). Comparison of flexible prompt fading to error correction for children with autism spectrum disorder. *Journal of Developmental and Physical Disabilities*, 26(2), 203-224. <https://doi.org/10.1007/s10882-013-9354-0>
77. Leaf, J. B., Sheldon, J. B., & Sherman, J. A. (2010). Comparison of simultaneous prompting and no-no prompting in two-choice discrimination learning with children with autism. *Journal of Applied Behavior Analysis*, 43(2), 215-228. <https://doi.org/10.1901/jaba.2010.43-215>
78. Leaf, J. B., Townley-Cochran, D., Mitchell, E., Milne, C., Alcalay, A., Leaf, J., Leaf, R., Taubman, M., McEachin, J., & Oppenheim-Leaf, M. L. (2016). Evaluation of multiple-alternative prompts during tact training. *Journal of Applied Behavior Analysis*, 49(2), 399-404. <https://doi.org/10.1002/jaba.289>
79. LeBlanc, L. A., Carr, J. E., Crossett, S. E., Bennett, C. M., & Detweiler, D. D. (2005). Intensive outpatient behavioral treatment of primary urinary incontinence of children with autism. *Focus on Autism and Other Developmental Disabilities*, 20(2), 98-105. <https://doi.org/10.1177/10883576050200020601>
80. Lee, R., & Sturmey, P. (2014). The effects of script-fading and a Lag-1 schedule on varied social responding in children with autism. *Research in Autism Spectrum Disorders*, 8(4), 440-448. <https://doi.org/10.1016/j.rasd.2014.01.003>
81. Levin, D. S., Volkert, V. M., & Piazza, C. C. (2014). A multi-component treatment to reduce packing in children with feeding and autism spectrum disorders. *Behavior Modification*, 38(6), 940-63. <https://doi.org/10.1177/0145445514550683>
82. Lorah, E. R., Parnell, A., & Speight, D. R. (2014). Acquisition of sentence frame discrimination using the iPad as a speech generating device in young children with developmental disabilities. *Research in Autism Spectrum Disorders*, 8(12), 1734-1740. <https://doi.org/10.1016/j.rasd.2014.09.004>
83. Lorah, E., Tincani, M., Dodge, J., Gilroy, S., Hickey, A., & Hantula, D. (2013). Evaluating picture exchange and the iPad as a speech generating device to teach communication to young children with Autism. *Journal of Developmental & Physical Disabilities*, 25(6), 637-649. <https://doi.org/10.1007/s10882-013-9337-1>
84. MacDuff, J. L., Ledo, R., McClannahan, L. E., & Krantz, P. J. (2007). Using scripts and script-fading procedures to promote bids for joint attention by young children with autism. *Research in Autism Spectrum Disorders*, 1(4), 281-290. <https://doi.org/10.1016/j.rasd.2006.11.003>
85. Majdalany, L. M., Wilder, D. A., Allgood, J., & Sturkie, L. (2017). Evaluation of a preliminary method to examine antecedent and consequent contributions to noncompliance. *Journal of Applied Behavior Analysis*, 50(1), 146-158. <https://doi.org/10.1002/jaba.353>
86. Marchese, N. V., Carr, J. E., LeBlanc, L. A., Rosati, T. C., & Conroy, S. A. (2012). The effects of the question "What is this?" on tact-training outcomes of children with autism. *Journal of Applied Behavior Analysis*, 45(3), 539-47. <https://doi.org/10.1901/jaba.2012.45-539>
87. Marcus, A., Sinnott, B., Bradley, S., & Grey, I. (2010). Treatment of idiopathic toe-walking in children with autism using GaitSpot auditory speakers and simplified habit reversal. *Research in Autism Spectrum Disorders*, 4(2), 260-267. <https://doi.org/10.1016/j.rasd.2009.09.012>

88. Marion, C., Martin, G. L., Yu, C. T., Buhler, C., & Kerr, D. (2012). Teaching children with autism spectrum disorder to mand 'where?'. *Journal of Behavioral Education, 21*(4), 273-294. <https://doi.org/10.1007/s10864-012-9148-y>
89. Matson, J. L., Taras, M. E., Sevin, J. A., Love, S. R., & Fridley, D. (1990). Teaching self-help skills to autistic and mentally retarded children. *Research in Developmental Disabilities, 11*(4), 361-378. [https://doi.org/10.1016/0891-4222\(90\)90023-2](https://doi.org/10.1016/0891-4222(90)90023-2)
90. McDowell, L. S., Gutierrez, A., & Bennett, K. D. (2015). Analysis of live modeling plus prompting and video modeling for teaching imitation to children with autism. *Behavioral Interventions, 30*(4), 333-351. <https://doi.org/10.1002/bin.1419>
91. McKay, J. A., Weiss, J. S., Dickson, C. A., & Ahearn, W. H. (2014). Comparison of prompting hierarchies on the acquisition of leisure and vocational skills. *Behavior Analysis in Practice, 7*(2), 91-102. <https://doi.org/10.1007/s40617-014-0022-3>
92. McKissick, B. R., Spooner, F., Wood, C. L., & Diegelmann, K. M. (2013). Effects of computer-assisted explicit instruction on map-reading skills for students with autism. *Research in Autism Spectrum Disorders, 7*(12), 1653-1662. <https://doi.org/10.1016/j.rasd.2013.09.013>
93. Miller, S. A., Rodriguez, N. M., & Rourke, A. J. (2015). Do mirrors facilitate acquisition of motor imitation in children diagnosed with autism? *Journal of Applied Behavior Analysis, 48*(1), 194-8. <https://doi.org/10.1002/jaba.187>
94. Mims, P. J., Hudson, M. E., & Browder, D. M. (2012). Using read-alouds of grade-level biographies and systematic prompting to promote comprehension for students with moderate and severe developmental disabilities. *Focus on Autism and Other Developmental Disabilities, 27*(2), 67-80. <https://doi.org/10.1177/1088357612446859>
95. Montgomery, J., Storey, K., Post, M., & Lemley, J. (2011). The use of auditory prompting systems for increasing independent performance of students with autism in employment training. *International Journal of Rehabilitation Research, 34*(4), 330-335. <https://doi.org/10.1097/MRR.0b013e32834a8fa8>
96. Muzammal, M. S., & Jones, E. A. (2016). Social-communication intervention for toddlers with autism spectrum disorder: Effects on initiating joint attention and interactions with mother. *Journal of Developmental and Physical Disabilities, 29*, 203-221. <https://doi.org/10.1007/s10882-016-9519-8>
97. Ninci, J., Lang, R., Davenport, K., Lee, A., Garner, J., Moore, M., Boutot, A., Rispoli, M., & Lancioni, G. (2013). An analysis of the generalization and maintenance of eye contact taught during play. *Developmental Neurorehabilitation, 16*(5), 301-7. <https://doi.org/10.3109/17518423.2012.730557>
98. O'Brien, M., McTiernan, A., & Holloway, J. (2017). Teaching phonics to preschool children with autism using frequency-building and computer-assisted instruction. *Journal of Developmental and Physical Disabilities, 30*, 215-237. <https://doi.org/10.1007/s10882-017-9581-x>
99. Ostryn, C., & Wolfe, P. S. (2011). Teaching children with autism to ask "what's that?" using a picture communication with vocal results. *Infants & Young Children, 24*(2), 174-192. <https://doi.org/10.1097/IYC.0b013e31820d95ff>
100. Ozen, A., Ergenekon, Y., & Ulke-Kurkuoglu, B. (2017). Effects of using simultaneous prompting and computer-assisted instruction during small group instruction. *Journal of Early Intervention, 39*(3), 236-252. <https://doi.org/10.1177/1053815117708998>
101. Paden, A. R., Kodak, T., Fisher, W. W., Gawley-Bullington, E. M., & Bouxsein, K. J. (2012). Teaching children with autism to engage in peer-directed mands using a picture exchange communication system. *Journal of Applied Behavior Analysis, 45*(2), 425-9. <https://doi.org/10.1901/jaba.2012.45-425>
102. Pelios, L. V., MacDuff, G. S., & Axelrod, S. (2003). The effects of a treatment package in establishing independent academic work skills in children with autism. *Education and Treatment of Children, 26*(1), 43851.
103. Pennington, R. C., Collins, B. C., Stenhoff, D. M., Turner, K., & Gunselman, K. (2014). Using simultaneous prompting and computer-assisted instruction to teach narrative writing skills to students with Autism. *Education and Training in Autism and Developmental Disabilities, 49*(3), 396-414.
104. Peterson, K. M., Piazza, C. C., & Volkert, V. M. (2016). A comparison of a modified sequential oral sensory approach to an applied behavior-analytic approach in the treatment of food selectivity in children with autism spectrum disorder. *Journal of Applied Behavior Analysis, 49*(3), 485-511. <https://doi.org/10.1002/jaba.332>
105. Post, A. R., & Kirkpatrick, M. A. (2004). Toilet training for a young boy with pervasive developmental disorder. *Behavioral Interventions, 19*(1), 45-50. <https://doi.org/10.1002/bin.149>
106. Purrzellera, K., & Mechling, L. C. (2013). Evaluation of manual spelling, observational and incidental learning using computer-based instruction with a tablet PC, large screen projection, and a forward chaining procedure. *Education and Training in Autism and Developmental Disabilities, 48*(2), 218-235.
107. Rakap, S., & Balikli, S. (2017). Using embedded instruction to teach functional skills to a preschool child with autism. *International Journal of Developmental Disabilities, 63*(1), 17-26. <https://doi.org/10.1080/20473869.2015.1109801>
108. Reagon, K. A., & Higbee, T. S. (2009). Parent-implemented script fading to promote play-based verbal initiations in children with autism. *Journal of Applied Behavior Analysis, 42*(3), 659-664. <https://doi.org/10.1901/jaba.2009.42-659>
109. Reeves, L. M., Umbreit, J., Ferro, J. B., & Liaupsin, C. J. (2013). Function-based intervention to support the inclusion of students with autism. *Education and Training in Autism and Developmental Disabilities, 48*(3), 379-391.
110. Reichle, J., Dropik, P. L., Alden-Anderson, E., & Haley, T. (2008). Teaching a young child with autism to request assistance conditionally: A preliminary study. *American Journal of Speech-Language Pathology, 17*(3), 231. [https://doi.org/10.1044/1058-0360\(2008\)022](https://doi.org/10.1044/1058-0360(2008)022)
111. Satsangi, R., & Bofferding, L. (2017). Improving the numerical knowledge of children with autism spectrum disorder: The benefits of linear board games. *Journal of Research in Special Educational Needs, 17*(3), 218-226. <https://doi.org/10.1111/1471-3802.12380>
112. Schrandt, J. A., Townsend, D. B., & Poulson, C. L. (2009). Teaching empathy skills to children with autism. *Journal of Applied Behavior Analysis, 42*(1), 17-32. <https://doi.org/10.1901/jaba.2009.42-17>
113. Shabani, D. B., Katz, R. C., Wilder, D. A., Beauchamp, K., Taylor, C. R., & Fischer, K. J. (2002). Increasing social initiations in children with autism: Effects of a tactile prompt. *Journal of Applied Behavior Analysis, 35*(1), 79-83. <https://doi.org/10.1901/jaba.2002.35-79>
114. Shillingsburg, M. A., Valentino, A. L., Bowen, C. N., Bradley, D., & Zavatkay, D. (2011). Teaching children with autism to request information. *Research in Autism Spectrum Disorders, 5*(1), 670-679. <https://doi.org/10.1016/j.rasd.2010.08.004>

115. Singh, B. D., Moore, D. W., Furlonger, B. E., Anderson, A., Busacca, M. L., & English, D. L. (2017). Teaching reading comprehension skills to a child with autism using behaviour skills training. *Journal of Autism and Developmental Disorders*, 47(10), 3049-3058. <https://doi.org/10.1007/s10803-017-3229-7>
116. Smith, B. R., Spooner, F., & Wood, C. L. (2013). Using embedded computer-assisted explicit instruction to teach science to students with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 7(3), 433-443. <https://doi.org/10.1016/j.rasd.2012.10.010>
117. Stevenson, C. L., Krantz, P. J., & McClannahan, L. E. (2000). Social interaction skills for children with autism: a script-fading procedure for nonreaders. *Behavioral Interventions*, 15(1), 43850. [https://doi.org/10.1002/\(SICI\)1099-078X\(200001/03\)15:13.O.CO;2-V](https://doi.org/10.1002/(SICI)1099-078X(200001/03)15:13.O.CO;2-V)
118. Swain, R., Lane, J. D., & Gast, D. L. (2015). Comparison of constant time delay and simultaneous prompting procedures: Teaching functional sight words to students with intellectual disabilities and autism spectrum disorder. *Journal of Behavioral Education*, 24(2), 210-229. <https://doi.org/10.1007/s10864-014-9209-5>
119. Swerdan, M. G., & Rosales, R. (2017). Comparison of prompting techniques to teach children with autism to ask questions in the context of a conversation. *Focus Autism Other Developmental Disabilities*, 32(2), 93-101. <https://doi.org/10.1177/1088357615610111>
120. Symons, F., & Davis, M. (1994). Instructional conditions and stereotyped behavior: The function of prompts. *Journal of Behavior Therapy and Experimental Psychiatry*, 25(4), 317-324. [https://doi.org/10.1016/0005-7916\(94\)90040-X](https://doi.org/10.1016/0005-7916(94)90040-X)
121. Tarbox, J., Zuckerman, C. K., Bishop, M. R., Olive, M. L., & O'Hora, D. P. (2011). Rule-governed behavior: Teaching a preliminary repertoire of rule-following to children with autism. *The Analysis of Verbal Behavior*, 27(1), 125-139. <https://doi.org/10.1007/bf03393096>
122. Taylor, B. A., & Hoch, H. (2008). Teaching children with autism to respond to and initiate bids for joint attention. *Journal of Applied Behavior Analysis*, 41(3), 377-391. <https://doi.org/10.1901/jaba.2008.41-377>
123. Tekin-Iftar, E., Collins, B. C., Spooner, F., & Olcay-Gul, S. (2017). Coaching teachers to use a simultaneous prompting procedure to teach core content to students with autism. *Teacher Education and Special Education*, 40(3), 225-245. <https://doi.org/10.1177/0888406417703751>
124. Thomas, B. R., Lafasakis, M., & Sturmey, P. (2010). The effects of prompting, fading, and differential reinforcement on vocal mands in non-verbal preschool children with autism spectrum disorders. *Behavioral Interventions*, 25(2), 157-168. <https://doi.org/10.1002/bin.300>
125. Toelken, S., & Miltenberger, R. G. (2012). Increasing independence among children diagnosed with autism using a brief embedded teaching strategy. *Behavioral Interventions*, 27(2), 93-104. <https://doi.org/10.1002/bin.337>
126. Twarek, M., Cihon, T., & Eshleman, J. (2010). The effects of fluent levels of Big 6+ 6 skill elements on functional motor skills with children with autism. *Behavioral Interventions*, 25(4), 275-293. <https://doi.org/10.1002/bin.317>
127. Tzanakaki, P., Grindle, C. F., Dungait, S., Hulson-Jones, A., Saville, M., Hughes, J. C., & Hastings, R. P. (2014). Use of a tactile prompt to increase social initiations in children with autism. *Research in Autism Spectrum Disorders*, 8(6), 726-736. <https://doi.org/10.1016/j.rasd.2014.03.016>
128. Valentino, A. L., Shillingsburg, M. A., & Call, N. A. (2012). Comparing the effects of echoic prompts and echoic prompts plus modeled prompts on intraverbal behavior. *Journal of Applied Behavior Analysis*, 45(2), 431-5. <https://doi.org/10.1901/jaba.2012.45-431>
129. Vedora, J., Meunier, L., & Mackay, H. (2009). Teaching intraverbal behavior to children with autism: A comparison of textual and echoic prompts. *The Analysis of Verbal Behavior*, 25(1), 79. <https://doi.org/10.1007/bf03393072>
130. Whalen, C., & Schreibman, L. (2003). Joint attention training for children with autism using behavior modification procedures. *Journal of Child Psychology and Psychiatry*, 44(3), 456-468. <https://doi.org/10.1111/1469-7610.00135>
131. Whalon, K., & Hanline, M. F. (2008). Effects of a reciprocal questioning intervention on the question generation and responding of children with autism spectrum disorder. *Education and Training in Developmental Disabilities*, 43(3), 367.
132. Whalon, K., Martinez, J. R., Shannon, D., Butcher, C., & Hanline, M. F. (2015). The impact of reading to engage children with autism in language and learning (RECALL). *Topics in Early Childhood Special Education*, 35(2), 102-115. <https://doi.org/10.1177/0271121414565515>
133. Wichnick-Gillis, A. M., Vener, S. M., & Poulson, C. L. (2016). The effect of a script-fading procedure on social interactions among young children with autism. *Research in Autism Spectrum Disorders*, 26, 1-9. <https://doi.org/10.1016/j.rasd.2016.03.004>
134. Williams, G., Donley, C. R., & Keller, J. W. (2000). Teaching children with autism to ask questions about hidden objects. *Journal of Applied Behavior Analysis*, 33(4), 627-630. <https://doi.org/10.1901/jaba.2000.33-627>
135. Williams, G., Pérez-González, L. A., & Vogt, K. (2003). The role of specific consequences in the maintenance of three types of questions. *Journal of Applied Behavior Analysis*, 36(3), 285-296. <https://doi.org/10.1901/jaba.2003.36-285>
136. Wood, B. K., Wolery, M., & Kaiser, A. P. (2009). Treatment of food selectivity in a young child with autism. *Focus on Autism and Other Developmental Disabilities*, 24(3), 169-177. <https://doi.org/10.1177/1088357609338381>
137. Wright, P., Miles, N., & Alexander, R. (2012). The effect of error correction and goal setting with reinforcement on the acquisition of tacts of form and function of unknown nouns for individuals with autism. *Journal of Speech-Language Pathology & Applied Behavior Analysis*, 5(3-4), 1-7.
138. Yanardağ, M., Birkan, B., Yılmaz, D., Konukman, F. K., AđbuĐa, B., & Lieberman, L. (2011). The effects of least-to-most prompting procedure in teaching basic tennis skills to children with autism. *Kinesiology*, 43(1), 44-55.
139. Yanardag, M., Erkan, M., Yilmaz, I., Arican, E., & Duzkantar, A. (2015). Teaching advance movement exploration skills in water to children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 9, 121-129. <https://doi.org/10.1016/j.rasd.2014.10.016>
140. Yi, J. I., Christian, L., Vittimberga, G., & Lowenkron, B. (2006). Generalized negatively reinforced manding in children with autism. *The Analysis of Verbal Behavior*, 22(1), 21-23. <https://doi.org/10.1007/bf03393024>
141. Yilmaz, I., Konukman, F., Birkan, B., & Yanardağ, M. (2010). Effects of most to least prompting on teaching simple progression swimming skill for children with autism. *Education and Training in Autism and Developmental Disabilities*, 45(3), 440-448.

* indicates articles that are either secondary data analysis or follow-up for an article already included in the list

Name of EBP	Reinforcement (R)
Definition of EBP	Reinforcement (R) is the application of consequences after a skills or behavior occurs that increases the learner’s use of the skills or behavior in future situations. Reinforcement includes positive reinforcement, negative reinforcement (different than punishment), non-contingent reinforcement, and token economy. Reinforcement is a foundational evidence-based practice in that it is almost always used with other evidence-based practices including prompting, discrete trial teaching, functional communication training, naturalistic intervention.

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓	✓	✓
	Social	✓	✓	✓	✓	✓	✓
	Joint attention	✓	✓	✓		✓	✓
	Play		✓	✓		✓	✓
	Cognitive			✓			
	School readiness	✓	✓	✓	✓	✓	
	Academic/ Pre-academic		✓	✓	✓	✓	
	Adaptive/ self-help	✓	✓	✓	✓	✓	✓
	Challenging/ Interfering behavior	✓	✓	✓	✓	✓	
	Vocational				✓	✓	✓
	Motor	✓	✓	✓			
	Mental health						
	Self- determination						

References

1. Athens, E. S., Vollmer, T. R., Sloman, K. N., & Pipkin, C. S. P. (2008). An analysis of vocal stereotypy and therapist fading. *Journal of Applied Behavior Analysis, 41*(2), 291-297. <https://doi.org/10.1901/jaba.2008.41-291>
2. Baltruschat, L., Hasselhorn, M., Tarbox, J., Dixon, D. R., Najdowski, A. C., Mullins, R. D., & Gould, E. R. (2011). Addressing working memory in children with autism through behavioral intervention. *Research in Autism Spectrum Disorders, 5*(1), 267-276. <https://doi.org/10.1016/j.rasd.2010.04.008>
3. Baltruschat, L., Hasselhorn, M., Tarbox, J., Dixon, D. R., Najdowski, A. C., Mullins, R. D., & Gould, E. R. (2011). Further analysis of the effects of positive reinforcement on working memory in children with autism. *Research in Autism Spectrum Disorders, 5*(2), 855-863. <https://doi.org/10.1016/j.rasd.2010.09.015>
4. Baltruschat, L., Hasselhorn, M., Tarbox, J., Dixon, D. R., Najdowski, A., Mullins, R. D., & Gould, E. (2012). The effects of multiple exemplar training on a working memory task involving sequential responding in children with autism. *The Psychological Record, 62*(3), 549-562. <https://doi.org/10.1007/BF03395820>
5. Bartlett, S. M., Rapp, J. T., Krueger, T. K., & Henrickson, M. L. (2011). The use of response cost to treat spitting by a child with autism. *Behavioral Interventions, 26*(1), 76-83. <https://doi.org/10.1002/bin.322>



6. Beaver, B. N., Reeve, S. A., Reeve, Kenneth F., & DeBar, R. M. (2017). Self-reinforcement compared to teacher-delivered reinforcement during activity schedules on the iPod Touch. *Education and Training in Autism and Developmental Disabilities*, 52(4), 393-404.
7. Beiers, K., Derby, K.M., & McLaughlin, T. F. (2016). Increasing social interactions using prompts and rewards for adolescents with ASD in an ice hockey practice context. *Educational Research Quarterly*, 39(3), 40-56.
8. Buckley, S. D., & Newchok, D. K. (2006). Analysis and treatment of problem behavior evoked by music. *Journal of Applied Behavior Analysis*, 39(1), 141-144. <https://doi.org/10.1901/jaba.2006.120-04>
9. Bui, L. T. D., Moore, D. W., & Anderson, A. (2014). Using escape extinction and reinforcement to increase eating in a young child with autism. *Behaviour Change*, 30(1), 48-55. <https://doi.org/10.1017/bec.2013.5>
10. Carlile, K. A., Reeve, S. A., Reeve, K. F., & DeBar, R. M. (2013). Using activity schedules on the iPod touch to teach leisure skills to children with autism. *Education & Treatment of Children*, 36(2), 33-57. <https://doi.org/10.1353/etc.2013.0015>
11. Carnett, A., Raulston, T., Lang, R., Tostanoski, A., Lee, A., Sigafoos, J., & Machalicek, W. (2014). Effects of a perseverative interest-based token economy on challenging and on-task behavior in a child with autism. *Journal of Behavioral Education*, 23(3), 368-377. <https://doi.org/10.1007/s10864-014-9195-7>
12. Carroll, R. A., Kodak, T., & Adolf, K. J. (2016). Effect of delayed reinforcement on skill acquisition during discrete-trial instruction: Implications for treatment-integrity errors in academic settings. *Journal of Applied Behavior Analysis*, 49(1), 176-81. <https://doi.org/10.1002/jaba.268>
13. Charlop-Christy, M. H., & Haymes, L. K. (1998). Using objects of obsession as token reinforcers for children with autism. *Journal of Autism and Developmental Disorders*, 28(3), 189-198. <https://doi.org/10.1023/A:1026061220171>
14. Charlop, M. H., Kurtz, P. F., & Casey, F. G. (1990). Using aberrant behaviors as reinforcers for autistic children. *Journal of Applied Behavior Analysis*, 23(2), 163-181. <https://doi.org/10.1901/jaba.1990.23-163>
15. Chou, W., Lee, G. T., & Feng, H. (2016). Use of a behavioral art program to improve social skills of two children with autism spectrum disorders. *Education and Training in Autism and Developmental Disabilities*, 51(2), 195-210.
16. Cihak, D. F., & Foust, J. L. (2008). Comparing number lines and touch points to teach addition facts to students with autism. *Focus on Autism and Other Developmental Disabilities*, 23(3), 131-137. <https://doi.org/10.1177/1088357608318950>
17. DeLeon, I. G., Anders, B. M., Rodriguez-Catter, V., & Neidert, P. L. (2000). The effects of noncontingent access to single-versus multiple-stimulus sets on self-injurious behavior. *Journal of Applied Behavior Analysis*, 33(4), 623-626. <https://doi.org/10.1901/jaba.2000.33-623>
18. DeQuinzio, J. A., & Taylor, B. A. (2015). Teaching children with autism to discriminate the reinforced and nonreinforced responses of others: implications for observational learning. *Journal of Applied Behavior Analysis*, 48(1), 38-51. <https://doi.org/10.1002/jaba.192>
19. DeQuinzio, J. A., Townsend, D. B., & Poulson, C. L. (2008). The effects of forward chaining and contingent social interaction on the acquisition of complex sharing responses by children with autism. *Research in Autism Spectrum Disorders*, 2(2), 264-275. <https://doi.org/10.1016/j.rasd.2007.06.006>
20. DeRosa, N. M., Roane, H. S., Bishop, J. R., & Silkowski, E. L. (2016). The combined effects of noncontingent reinforcement and punishment on the reduction of rumination. *Journal of Applied Behavior Analysis*, 49(3), 680-5. <https://doi.org/10.1002/jaba.304>
21. Dupuis, D. L., Lerman, D. C., Tsami, L., & Shireman, M. L. (2015). Reduction of aggression evoked by sounds using noncontingent reinforcement and time-out. *Journal of Applied Behavior Analysis*, 48(3), 669-74. <https://doi.org/10.1002/jaba.220>
22. Esch, B. E., Carr, J. E., & Grow, L. L. (2009). Evaluation of an enhanced stimulus-stimulus pairing procedure to increase early vocalizations of children with autism. *Journal of Applied Behavior Analysis*, 42(2), 225-241. <https://doi.org/10.1901/jaba.2009.42-225>
23. Falcomata, T. S., Hoffman, K. J., Gainey, S., Muething, C. S., & Fienup, D. M. (2013). A preliminary evaluation of reinstatement of destructive behavior displayed by individuals with autism. *The Psychological Record*, 63(3), 453-466. <https://doi.org/10.11133/j.tpr.2013.63.3.004>
24. Falcomata, T. S., Roane, H. S., Hovanetz, A. N., Kettering, T. L., & Keeney, K. M. (2004). An evaluation of response cost in the treatment of inappropriate vocalizations maintained by automatic reinforcement. *Journal of Applied Behavior Analysis*, 37(1), 83-87. <https://doi.org/10.1901/jaba.2004.37-83>
25. Falcomata, T. S., Roane, H. S., Muething, C. S., Stephenson, K. M., & Ing, A. D. (2012). Functional communication training and chained schedules of reinforcement to treat challenging behavior maintained by terminations of activity interruptions. *Behavior Modification*, 36(5), 630-49. <https://doi.org/10.1177/0145445511433821>
26. Fleury, V. P., Miramontez, S. H., Hudson, R. F., & Schwartz, I. S. (2014). Promoting active participation in book reading for pre-schoolers with Autism Spectrum Disorders: A preliminary study. *Child Language Teaching and Therapy*, 30(3), 273-288. <https://doi.org/10.1177/0265659013514069>
27. Fu, S. B., Penrod, B., Fernand, J. K., Whelan, C. M., Griffith, K., & Medved, S. (2015). The effects of modeling contingencies in the treatment of food selectivity in children with autism. *Behavior Modification*, 39(6), 771-84. <https://doi.org/10.1177/0145445515592639>
28. Ganz, J. B., Boles, M. B., Goodwyn, F. D., & Flores, M. M. (2014). Efficacy of handheld electronic visual supports to enhance vocabulary in children with ASD. *Focus on Autism and Other Developmental Disabilities*, 29(1), 43902. <https://doi.org/10.1177/1088357613504991>
29. Gena, A. (2006). The effects of prompting and social reinforcement on establishing social interactions with peers during the inclusion of four children with autism in preschool. *International Journal of Psychology*, 41(6), 541-554. <https://doi.org/10.1080/00207590500492658>
30. Gilley, C., & Ringdahl, J. E. (2014). The effects of item preference and token reinforcement on sharing behavior exhibited by children with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 8(11), 1425-1433. <https://doi.org/10.1016/j.rasd.2014.07.010>
31. Gokey, K. M., Wilder, D. A., Welch, T., Collier, A., & Mathisen, D. (2013). Fading a concurrent activity during self-control training for children with autism. *Journal of Applied Behavior Analysis*, 46(4), 827-31. <https://doi.org/10.1002/jaba.77>
32. Graff, R. B., & Larsen, J. (2011). The relation between obtained preference value and reinforcer potency. *Behavioral Interventions*, 26(2), 125-133. <https://doi.org/10.1002/bin.325>
33. Graff, R. B., & Libby, M. E. (1999). A comparison of pre-session and within-session reinforcement choice. *Journal of Applied Behavior Analysis*, 32(2), 161-173. <https://doi.org/10.1901/jaba.1999.32-161>

34. Greenberg, J. H., Lau, W., & Lau, S. (2016). Teaching appropriate play to replace stereotypy using a treatment package with students having autism. *Global Education Review*, 3(3), 94-104.
35. Groskreutz, M. P., Groskreutz, N. C., & Higbee, T. S. (2011). Response competition and stimulus preference in the treatment of automatically reinforced behavior: A comparison. *Journal of Applied Behavior Analysis*, 44(1), 211-215. <https://doi.org/10.1901/jaba.2011.44-211>
36. Hagopian, L. P., Bruzek, J. L., Bowman, L. G., & Jennett, H. K. (2007). Assessment and treatment of problem behavior occasioned by interruption of free-operant behavior. *Journal of Applied Behavior Analysis*, 40(1), 89-103. <https://doi.org/10.1901/jaba.2007.63-05>
37. Hagopian, L. P., Farrell, D. A., & Amari, A. (1996). Treating total liquid refusal with backward chaining and fading. *Journal of Applied Behavior Analysis*, 29(4), 573-575. <https://doi.org/10.1901/jaba.1996.29-573>
38. Hagopian, L. P., Fisher, W. W., & Legacy, S. M. (1994). Schedule effects of noncontingent reinforcement on attention-maintained destructive behavior in identical quadruplets. *Journal of Applied Behavior Analysis*, 27(2), 317-325. <https://doi.org/10.1901/jaba.1994.27-317>
39. Harchik, A. E., Harchik, A. J., Luce, S. C., & Sherman, J. A. (1990). Teaching autistic and severely handicapped children to recruit praise: Acquisition and generalization. *Research in Developmental Disabilities*, 11(1), 77-95. [https://doi.org/10.1016/0891-4222\(90\)90006-T](https://doi.org/10.1016/0891-4222(90)90006-T)
40. Higbee, T. S., Carr, J. E., & Patel, M. R. (2002). The effects of interpolated reinforcement on resistance to extinction in children diagnosed with autism: A preliminary investigation. *Research in Developmental Disabilities*, 23(1), 61-78. [https://doi.org/10.1016/S0891-4222\(01\)00092-0](https://doi.org/10.1016/S0891-4222(01)00092-0)
41. Hoch, H., McComas, J. J., Johnson, L., Faranda, N., & Guenther, S. L. (2002). The effects of magnitude and quality of reinforcement on choice responding during play activities. *Journal of Applied Behavior Analysis*, 35(2), 171-181. <https://doi.org/10.1901/jaba.2002.35-171>
42. Hoch, H., McComas, J. J., Thompson, A. L., & Paone, D. (2002). Concurrent reinforcement schedules: Behavior change and maintenance without extinction. *Journal of Applied Behavior Analysis*, 35(2), 155-169. <https://doi.org/10.1901/jaba.2002.35-155>
43. Hoch, H., Taylor, B. A., & Rodriguez, A. (2009). Teaching teenagers with autism to answer cell phones and seek assistance when lost. *Behavior Analysis in Practice*, 2(1), 14. <https://doi.org/10.1007/BF03391733>
44. Hong, E. R., Neely, L., Rispoli, M. J., Trepinski, T. M., Gregori, E., & Davis, T. (2015). A comparison of general and explicit delay cues to reinforcement for tangible-maintained challenging behaviour. *Developmental Neurorehabilitation*, 18(6), 395-401. <https://doi.org/10.3109/17518423.2013.874378>
45. Hudson, R. F., Sanders, E. A., Greenway, R., Xie, S., Smith, M., Gasamis, C., Martini, J., Schwartz, I., & Hackett, J. (2017). Effects of emergent literacy interventions for preschoolers with autism spectrum disorder. *Exceptional Children*, 84(1), 55-75. <https://doi.org/10.1177/0014402917705855>
46. Iadarola, S., Shih, W., Dean, M., Blanch, E., Harwood, R., Hetherington, S., Mandell, D., Kasari, C., & Smith, T. (2018). Implementing a manualized, classroom transition intervention for students with ASD in underresourced schools. *Behavior Modification*, 42(1), 126-147. <https://doi.org/10.1177/0145445517711437>
47. Jimenez, B. A., & Kemmery, M. (2013). Building the early numeracy skills of students with moderate intellectual disability. *Education and Training in Autism and Developmental Disabilities*, 48(4), 479-490.
48. Kassardjian, A., Leaf, J. A., Leaf, J. B., Townley-Cochran, D., Alcalay, A., Milne, C., Dale, S., Tsuji, K., Leaf, R., Taubman, M., & McEachin, J. (2016). Evaluation of graduated vs all-or-none contingencies on rate tasks for individuals diagnosed with autism. *Education and Training in Autism and Developmental Disabilities*, 51(4), 434-446.
49. Keen, D., & Pennell, D. (2015). The use of preferred items in a word-learning task: Effects on on-task behaviour and learning outcomes of children with autism spectrum disorder. *Australasian Journal of Special Education*, 39(1), 56-66. <https://doi.org/10.1017/jse.2014.16>
50. Kern, L., Carberry, N., & Haidara, C. (1997). Analysis and intervention with two topographies of challenging behavior exhibited by a young woman with autism. *Research in Developmental Disabilities*, 18(4), 275-287. [https://doi.org/10.1016/S0891-4222\(97\)00009-7](https://doi.org/10.1016/S0891-4222(97)00009-7)
51. Kern, L., & Marder, T. J. (1996). A comparison of simultaneous and delayed reinforcement as treatments for food selectivity. *Journal of Applied Behavior Analysis*, 29(2), 243-246. <https://doi.org/10.1901/jaba.1996.29-243>
52. Knight, V. F., Smith, B. R., Spooner, F., & Browder, D. (2012). Using explicit instruction to teach science descriptors to students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 42(3), 378-389. <https://doi.org/10.1007/s10803-011-1258-1>
53. Knox, M., Rue, H. C., Wildenger, L., Lamb, K., & Luiselli, J. K. (2012). Intervention for food selectivity in a specialized school setting: Teacher implemented prompting, reinforcement, and demand fading for an adolescent student with autism. *Education & Treatment of Children*, 35(3), 407-417. <https://doi.org/10.1353/etc.2012.0016>
54. Kocher, C. P., Howard, M. R., & Fienup, D. M. (2015). The effects of work-reinforcer schedules on skill acquisition for children with autism. *Behavior Modification*, 39(4), 600-21. <https://doi.org/10.1177/0145445515583246>
55. Koegel, L. K., Camarata, S. M., Valdez-Menchaca, M., & Koegel, R. L. (1997). Setting generalization of question-asking by children with autism. *American Journal on Mental Retardation*, 102(4), 346-357. [https://doi.org/10.1352/0895-8017\(1998\)102:0.CO;2](https://doi.org/10.1352/0895-8017(1998)102:0.CO;2)
56. Kohler, F. W., Strain, P. S., Maresky, S., & DeCesare, L. (1990). Promoting positive and supportive interactions between preschoolers: An analysis of group-oriented contingencies. *Journal of Early Intervention*, 14(4), 327-341. <https://doi.org/10.1177/105381519001400404>
57. Kranak, M. P., Alber-Morgan, S. R., Sawyer, & M. R. (2017). A parametric analysis of specific praise rates on the on-task behavior of elementary students with autism. *Education and Training in Autism and Developmental Disabilities*, 52(4), 453-464.
58. Landa, R., & Hanley, G. P. (2016). An evaluation of multiple-schedule variations to reduce high-rate requests in the picture exchange communication system. *Journal of Applied Behavior Analysis*, 49(2), 388-93. <https://doi.org/10.1002/jaba.285>
59. Lang, R., Machalicek, W., Rispoli, M., O'Reilly, M., Sigafoos, J., Lancioni, G., Peters-Scheffer, N., & Didden, R. (2014). Play skills taught via behavioral intervention generalize, maintain, and persist in the absence of socially mediated reinforcement in children with autism. *Research in Autism Spectrum Disorders*, 8(7), 860-872. <https://doi.org/10.1016/j.rasd.2014.04.007>
60. LeBlanc, L. A., Carr, J. E., Crosssett, S. E., Bennett, C. M., & Detweiler, D. D. (2005). Intensive outpatient behavioral treatment of primary urinary incontinence of children with autism. *Focus on Autism and Other Developmental Disabilities*, 20(2), 98-105. <https://doi.org/10.1177/10883576050200020601>

61. Lee, R., & Sturmey, P. (2006). The effects of lag schedules and preferred materials on variable responding in students with autism. *Journal of Autism and Developmental Disorders*, 36(3), 421-428. <https://doi.org/10.1007/s10803-006-0080-7>
62. Lepper, T. L., & Petursdottir, A. I. (2017). Effects of response-contingent stimulus pairing on vocalizations of nonverbal children with autism. *Journal of Applied Behavior Analysis*, 50(4), 756-774. <https://doi.org/10.1002/jaba.415>
63. Leung, J. P., & Wu, K. I. (1997). Teaching receptive naming of Chinese characters to children with autism by incorporating echolalia. *Journal of Applied Behavior Analysis*, 30(1), 59-68. <https://doi.org/10.1901/jaba.1997.30-59>
64. Levin, L., & Carr, E. G. (2001). Food selectivity and problem behavior in children with developmental disabilities analysis and intervention. *Behavior Modification*, 25(3), 443-470. <https://doi.org/10.1177/0145445501253004>
65. Lomas Mevers, J. E., Fisher, W. W., Kelley, M. E., & Fredrick, L. D. (2014). The effects of variable-time versus contingent reinforcement delivery on problem behavior maintained by escape. *Journal of Applied Behavior Analysis*, 47(2), 277-92. <https://doi.org/10.1002/jaba.110>
66. Machalicek, W., O'Reilly, M., Chan, J. M., Lang, R., Rispoli, M., Davis, T., Shogren, K., Sigafoos, J., Lancioni, G., Antonucci, M., Langthorne, P., Andrews, A., & Didden, R. (2009). Using videoconferencing to conduct functional analysis of challenging behavior and develop classroom behavioral support plans for students with autism. *Education and Training in Developmental Disabilities*, 44(2), 207-217.
67. Majdalany, L. M., Wilder, D. A., Allgood, J., & Sturkie, L. (2017). Evaluation of a preliminary method to examine antecedent and consequent contributions to noncompliance. *Journal of Applied Behavior Analysis*, 50(1), 146-158. <https://doi.org/10.1002/jaba.353>
68. Marion, C., Martin, G. L., Yu, C. T., Buhler, C., & Kerr, D. (2012). Teaching children with autism spectrum disorder to mand 'where?'. *Journal of Behavioral Education*, 21(4), 273-294. <https://doi.org/10.1007/s10864-012-9148-y>
69. Matson, J. L., Taras, M. E., Sevin, J. A., Love, S. R., & Fridley, D. (1990). Teaching self-help skills to autistic and mentally retarded children. *Research in Developmental Disabilities*, 11(4), 361-378. [https://doi.org/10.1016/0891-4222\(90\)90023-2](https://doi.org/10.1016/0891-4222(90)90023-2)
70. McDonald, M. E., & Hemmes, N. S. (2003). Increases in social initiation toward an adolescent with autism: Reciprocity effects. *Research in Developmental Disabilities*, 24(6), 453-465. <https://doi.org/10.1016/j.ridd.2003.04.001>
71. McDowell, L. S., Gutierrez, A., & Bennett, K. D. (2015). Analysis of live modeling plus prompting and video modeling for teaching imitation to children with autism. *Behavioral Interventions*, 30(4), 333-351. <https://doi.org/10.1002/bin.1419>
72. Miller, S. A., Rodriguez, N. M., & Rourke, A. J. (2015). Do mirrors facilitate acquisition of motor imitation in children diagnosed with autism? *Journal of Applied Behavior Analysis*, 48(1), 194-8. <https://doi.org/10.1002/jaba.187>
73. Milo, J. S., Mace, F. C., & Nevin, J. A. (2010). The effects of constant versus varied reinforcers on preference and resistance to change. *Journal of the Experimental Analysis of Behavior*, 93(3), 385-394. <https://doi.org/10.1901/jeab.2010.93-385>
74. Muzammal, M. S., & Jones, E. A. (2016). Social-communication intervention for toddlers with autism spectrum disorder: Effects on initiating joint attention and interactions with mother. *Journal of Developmental and Physical Disabilities*, 29, 203-221. <https://doi.org/10.1007/s10882-016-9519-8>
75. Newman, B. & Ten Eyck, P. (2005). Self-management of initiations by students diagnosed with autism. *The Analysis of Verbal Behavior*, 21(1), 117-122. <https://doi.org/10.1007/bf03393013>
76. Normand, M. P., & Beaulieu, L. (2011). Further evaluation of response-independent delivery of preferred stimuli and child compliance. *Journal of Applied Behavior Analysis*, 44(3), 665-669. <https://doi.org/10.1901/jaba.2011.44-665>
77. Nuzzolo-Gomez, R., Leonard, M. A., Ortiz, E., Rivera, C. M., & Greer, R. D. (2002). Teaching children with autism to prefer books or toys over stereotypy or passivity. *Journal of Positive Behavior Interventions*, 4(2), 80-87. <https://doi.org/10.1177/109830070200400203>
78. Ozen, A., Ergenekon, Y., & Ulke-Kurcuoglu, B. (2017). Effects of using simultaneous prompting and computer-assisted instruction during small group instruction. *Journal of Early Intervention*, 39(3), 236-252. <https://doi.org/10.1177/1053815117708998>
79. Pelios, L. V., MacDuff, G. S., & Axelrod, S. (2003). The effects of a treatment package in establishing independent academic work skills in children with autism. *Education and Treatment of Children*, 26(1), 1-21.
80. Plavnick, J. B., Thompson, J. L., Englert, C. S., Mariage, T., & Johnson, K. (2016). Mediating access to Headsprout: Early reading for children with autism spectrum disorders. *Journal of Behavioral Education*, 25(3), 357-378. <https://doi.org/10.1007/s10864-015-9244-x>
81. Polick, A. S., Carr, J. E., & Hanney, N. M. (2012). A comparison of general and descriptive praise in teaching intraverbal behavior to children with autism. *Journal of Applied Behavior Analysis*, 45(3), 593-9. <https://doi.org/10.1901/jaba.2012.45-593>
82. Post, A. R., & Kirkpatrick, M. A. (2004). Toilet training for a young boy with pervasive developmental disorder. *Behavioral Interventions*, 19(1), 45-50. <https://doi.org/10.1002/bin.149>
83. Prefontaine, I., Lanovaz, M. J., McDuff, E., McHugh, C., & Cook, J. L. (2017). Using mobile technology to reduce engagement in stereotypy: A validation of decision-making algorithms. *Behavior Modification*, 43(2), 222-245. <https://doi.org/10.1177/0145445517748560>
84. Radley, K. C., Dart, E. H., Moore, J. W., Lum, J. D. K., & Pasqua, J. (2017). Enhancing appropriate and variable responding in young children with autism spectrum disorder. *Developmental Neurorehabilitation*, 20(8), 538-548. <https://doi.org/10.1080/17518423.2017.1323973>
85. Reeves, L. M., Umbreit, J., Ferro, J. B., & Liaupsin, C. J. (2013). Function-based intervention to support the inclusion of students with autism. *Education and Training in Autism and Developmental Disabilities*, 48(3), 379-391.
86. Reichle, J., Johnson, L., Monn, E., & Harris, M. (2010). Task engagement and escape maintained challenging behavior: differential effects of general and explicit cues when implementing a signaled delay in the delivery of reinforcement. *Journal of Autism and Developmental Disorders*, 40(6), 709-720. <https://doi.org/10.1007/s10803-010-0946-6>
87. Rigsby-Eldredge, M., & McLaughlin, T. F. (1992). The effects of modeling and praise on self-initiated behavior across settings with two adolescent students with autism. *Journal of Developmental and Physical Disabilities*, 4(3), 205-218. <https://doi.org/10.1007/BF01046965>
88. Rispoli, M., Ganz, J., Neely, L., & Goodwyn, F. (2013). The effect of noncontingent positive versus negative reinforcement on multiply controlled behavior during discrete trial training. *Journal of Developmental and Physical Disabilities*, 25(1), 135-148. <https://doi.org/10.1007/s10882-012-9315-z>

89. Rodriguez, N. M., Thompson, R. H., Schlichenmeyer, K., & Stocco, C. S. (2012). Functional analysis and treatment of arranging and ordering by individuals with an autism spectrum disorder. *Journal of Applied Behavior Analysis, 45*(1), 438-52. <https://doi.org/10.1901/jaba.2012.45-1>
90. Schmidt, J. D., Luiselli, J. K., Rue, H., & Whalley, K. (2013). Graduated exposure and positive reinforcement to overcome setting and activity avoidance in an adolescent with autism. *Behavior Modification, 37*(1), 128-42. <https://doi.org/10.1177/0145445512456547>
91. Sidener, T. M., Shabani, D. B., Carr, J. E., & Roland, J. P. (2006). An evaluation of strategies to maintain mands at practical levels. *Research in Developmental Disabilities, 27*(6), 632-644. <https://doi.org/10.1016/j.ridd.2005.08.002>
92. Singh, B. D., Moore, D. W., Furlonger, B. E., Anderson, A., Busacca, M. L., & English, D. L. (2017). Teaching reading comprehension skills to a child with autism using behaviour skills training. *Journal of Autism and Developmental Disorders, 47*(10), 3049-3058. <https://doi.org/10.1007/s10803-017-3229-7>
93. Smith, B. R., Spooner, F., & Wood, C. L. (2013). Using embedded computer-assisted explicit instruction to teach science to students with autism spectrum disorder. *Research in Autism Spectrum Disorders, 7*(3), 433-443. <https://doi.org/10.1016/j.rasd.2012.10.010>
94. Solis, M., El Zein, F., Vaughn, S., McCulley, L. V., & Falcomata, T. S. (2016). Reading comprehension interventions for students with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 31*(4), 284-299. <https://doi.org/10.1177/1088357615583464>
95. Stevens, C., Sidener, T. M., Reeve, S. A., & Sidener, D. W. (2011). Effects of behavior-specific and general praise, on acquisition of tacts in children with pervasive developmental disorders. *Research in Autism Spectrum Disorders, 5*(1), 666-669. <https://doi.org/10.1016/j.rasd.2010.08.003>
96. Strain, P. S., Wilson, K., & Dunlap, G. (2011). Prevent-teach-reinforce: Addressing problem behaviors of students with autism in general education classrooms. *Behavioral Disorders-Journal of the Council for Children with Behavioral Disorders, 36*(3), 160-171. <https://doi.org/10.1177/019874291003600302>
97. Sy, J. R., & Vollmer, T. R. (2012). Discrimination acquisition in children with developmental disabilities under immediate and delayed reinforcement. *Journal of Applied Behavior Analysis, 45*(4), 667-684. <https://doi.org/10.1901/jaba.2012.45-667>
98. Tarbox, R. S., Ghezzi, P. M., & Wilson, G. (2006). The effects of token reinforcement on attending in a young child with autism. *Behavioral Interventions, 21*(3), 155-164. <https://doi.org/10.1002/bin.213>
99. Tsiouri, I., & Greer, R. D. (2007). The role of different social reinforcement contingencies in inducing echoic tacts through motor imitation responding in children with severe language delays. *Journal of Early and Intensive Behavior Intervention, 4*(4), 629-647. <http://dx.doi.org/10.1037/h0100397>
100. Valentino, A. L., Shillingsburg, M. A., & Call, N. A. (2012). Comparing the effects of echoic prompts and echoic prompts plus modeled prompts on intraverbal behavior. *Journal of Applied Behavior Analysis, 45*(2), 431-5. <https://doi.org/10.1901/jaba.2012.45-431>
101. Volkert, V. M., Vaz, P., Piazza, C. C., Frese, J., & Barnett, L. (2011). Using a flipped spoon to decrease packing in children with feeding disorders. *Journal of Applied Behavior Analysis, 44*(3), 617-621. <https://doi.org/10.1901/jaba.2011.44-617>
102. Whalen, C., & Schreibman, L. (2003). Joint attention training for children with autism using behavior modification procedures. *Journal of Child Psychology and Psychiatry, 44*(3), 456-468. <https://doi.org/10.1111/1469-7610.00135>
103. Williams, G., Pérez-González, L. A., & Vogt, K. (2003). The role of specific consequences in the maintenance of three types of questions. *Journal of Applied Behavior Analysis, 36*(3), 285-296. <https://doi.org/10.1901/jaba.2003.36-285>
104. Wood, B. K., Wolery, M., & Kaiser, A. P. (2009). Treatment of food selectivity in a young child with autism. *Focus on Autism and Other Developmental Disabilities, 24*(3), 169-177. <https://doi.org/10.1177/1088357609338381>
105. Wright, P., Miles, N., & Alexander, R. (2012). The effect of error correction and goal setting with reinforcement on the acquisition of tacts of form and function of unknown nouns for individuals with autism. *Journal of Speech-Language Pathology & Applied Behavior Analysis, 5*(3-4), 1-7.
106. Young, J. M., Krantz, P. J., McClannahan, L. E., & Poulson, C. L. (1994). Generalized imitation and response-class formation in children with autism. *Journal of Applied Behavior Analysis, 27*(4), 685-697. <https://doi.org/10.1901/jaba.1994.27-685>

Name of EBP	Response Interruption/Redirection (RIR)
Definition of EBP	Response interruption/redirection (RIR) involves the introduction of a prompt, comment, or other distractor when an interfering behavior is occurring that is designed to divert the learner's attention away from the interfering behavior and results in its reduction. Specifically, RIR is used predominantly to address behaviors that are repetitive, stereotypical, and/or self-injurious. RIR often is implemented after a functional behavior assessment (FBA) has been conducted to identify the function of the interfering behavior. RIR is particularly useful with persistent interfering behaviors that occur in the absence of other people, in a number of different settings, and during a variety of tasks. These behaviors often are not maintained by attention or escape. Instead, they are more likely maintained by sensory reinforcement and are often resistant to intervention attempts. RIR is particularly effective with sensory-maintained behaviors because learners are interrupted from engaging in interfering behaviors and redirected to more appropriate, alternative behaviors.

		Age Ranges					
Outcome Areas		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓	✓		
	Social		✓	✓			
	Joint attention						
	Play		✓	✓			
	Cognitive						
	School readiness		✓	✓			
	Academic/ Pre-academic		✓	✓			
	Adaptive/ self-help		✓	✓			
	Challenging/ Interfering behavior		✓	✓	✓	✓	✓
	Vocational						
	Motor			✓			
	Mental health						
	Self-determination						

References

- Ahearn, W. H., Clark, K. M., MacDonald, R. P., & Chung, B. I. (2007). Assessing and treating vocal stereotypy in children with autism. *Journal of Applied Behavior Analysis, 40*(2), 263-275. <https://doi.org/10.1901/jaba.2007.30-06>
- Ahrens, E. N., Lerman, D. C., Kodak, T., Worsdell, A. S., & Keegan, C. (2011). Further evaluation of response interruption and redirection as treatment for stereotypy. *Journal of Applied Behavior Analysis, 44*(1), 95-108. <https://doi.org/10.1901/jaba.2011.44-95>
- Armstrong, A., Knapp, V. M., & McAdam, D. B. (2014). Functional analysis and treatment of the diurnal bruxism of a 16-year-old girl with autism. *Journal of Applied Behavior Analysis, 47*(2), 415-9. <https://doi.org/10.1002/jaba.122>
- Cassella, M. D., Sidener, T. M., Sidener, D. W., & Progar, P. R. (2011). Response interruption and redirection for vocal stereotypy in children with autism: A systematic replication. *Journal of Applied Behavior Analysis, 44*(1), 169-173. <https://doi.org/10.1901/jaba.2011.44-169>
- Chok, J. T., & Harper, J. M. (2016). Heart rate assessment and use of a multiple schedule treatment for an individual with obsessive compulsive-like behavior. *Journal of Developmental and Physical Disabilities, 28*(6), 821-834. <https://doi.org/10.1007/s10882-016-9511-3>

6. Cook, J. L., Rapp, J. T., Gomes, L. A., Frazer, T. J., & Lindblad, T. L. (2014). Effects of verbal reprimands on targeted and untargeted stereotypy. *Behavioral Interventions, 29*(2), 106-124. <https://doi.org/10.1002/bin.1378>
7. Dominguez, A., Wilder, D. A., Cheung, K., & Rey, C. (2014). The use of a verbal reprimand to decrease rumination in a child with autism. *Behavioral Interventions, 29*(4), 339-345. <https://doi.org/10.1002/bin.1390>
8. Duker, P. C. & Schappveld, M. (1996). Increasing on-task behaviour through interruption-prompting. *Journal of Intellectual Disability Research, 40*(4), 291-297. <https://doi.org/10.1111/j.1365-2788.1996.tb00633.x>
9. Giles, A., Swain, S., Quinn, L., & Weifenbach, B. (2018). Teacher-implemented response interruption and redirection: Training, evaluation, and descriptive analysis of treatment integrity. *Behavior Modification, 42*(1), 148-169. <https://doi.org/10.1177/0145445517731061>
10. Hagopian, L. P., & Toole, L. M. (2009). Effects of response blocking and competing stimuli on stereotypic behavior. *Behavioral Interventions, 24*(2), 117-125. <https://doi.org/10.1002/bin.278>
11. Lang, R., O'Reilly, M., Sigafoos, J., Lancioni, G. E., Machalicek, W., Rispoli, M., & White, P. (2009). Enhancing the effectiveness of a play intervention by abolishing the reinforcing value of stereotypy: A pilot study. *Journal of Applied Behavior Analysis, 42*(4), 889. <https://doi.org/10.1901/jaba.2009.42-889>
12. Lang, R., O'Reilly, M., Sigafoos, J., Machalicek, W., Rispoli, M., Lancioni, G. E., Aguilar, J., & Fragale, C. (2010). The effects of an abolishing operation intervention component on play skills, challenging behavior, and stereotypy. *Behavioral Interventions, 34*(4), 267-289. <https://doi.org/10.1177/0145445510370713>
13. Langone, S. R., Luiselli, J. K., & Hamill, J. (2013). Effects of response blocking and programmed stimulus control on motor stereotypy: A pilot study. *Child & Family Behavior Therapy, 35*(3), 249-255. <https://doi.org/10.1080/07317107.2013.818906>
14. Liu-Gitz, L., & Banda, D. R. (2010). A replication of the RIRD strategy to decrease vocal stereotypy in a student with autism. *Behavioral Interventions, 25*(1), 77-87. <https://doi.org/10.1002/bin.297>
15. Love, J. J., Miguel, C. F., Fernand, J. K., & LaBrie, J. K. (2012). The effects of matched stimulation and response interruption and redirection on vocal stereotypy. *Journal of Applied Behavior Analysis, 45*(3), 549-64. <https://doi.org/10.1901/jaba.2012.45-549>
16. Magnusson, A. F., & Gould, D. D. (2007). Reduction of automatically-maintained self-injury using contingent equipment removal. *Behavioral Interventions, 22*(1), 57-68. <https://doi.org/10.1002/bin.231>
17. Martinez, C. K., Betz, A. M., Liddon, C. J., & Werle, R. L. (2016). A progression to transfer RIRD to the natural environment. *Behavioral Interventions, 31*(2), 144-162. <https://doi.org/10.1002/bin.1444>
18. Miguel, C. F., Clark, K., Tereshko, L., & Ahearn, W. H. (2009). The effects of response interruption and redirection and sertraline on vocal stereotypy. *Journal of Applied Behavior Analysis, 42*(4), 883. <https://doi.org/10.1901/jaba.2009.42-883>
19. O'Connor, A. S., Prieto, J., Hoffmann, B., DeQuinzio, J. A., & Taylor, B. A. (2011). A stimulus control procedure to decrease motor and vocal stereotypy. *Behavioral Interventions, 26*(3), 231-242. <https://doi.org/10.1002/bin.335>
20. Pastrana, S. J., Rapp, J. T., & Frewing, T. M. (2013). Immediate and subsequent effects of response interruption and redirection on targeted and untargeted forms of stereotypy. *Behavior Modification, 37*(4), 591-610. <https://doi.org/10.1177/0145445513485751>
21. Piazza, C. C., Hanley, G. P., & Fisher, W. W. (1996). Functional analysis and treatment of cigarette pica. *Journal of Applied Behavior Analysis, 29*(4), 437-450. <https://doi.org/10.1901/jaba.1996.29-437>
22. Plavnick, J. B., Mariage, T., Englert, C. S., Constantine, K., Morin, L., & Skibbe, L. (2014). Promoting independence during computer assisted reading instruction for children with autism spectrum disorders. *Revista Mexicana de Analisis de la Conducta, 40*(2), 85-105. <https://doi.org/10.5514/rmac.v40.i2.63667>
23. Rapp, J. T., Vollmer, T. R., & Hovanetz, A. N. (2006). Evaluation and treatment of swimming pool avoidance exhibited by an adolescent girl with autism. *Behavior Therapy, 36*(1), 101-105. [https://doi.org/10.1016/S0005-7894\(05\)80058-9](https://doi.org/10.1016/S0005-7894(05)80058-9)
24. Saini, V., Greer, B. D., Fisher, W. W., Lichtblau, K. R., DeSouza, A. A., & Mitteer, D. R. (2016). Individual and combined effects of noncontingent reinforcement and response blocking on automatically reinforced problem behavior. *Journal of Applied Behavior Analysis, 49*(3), 693-698. <https://doi.org/10.1002/jaba.306>
25. Schmidt, J. D., Long, A., Goetzel, A. L., Tung, C., Pizarro, E., Phillips, C., & Hausman, N. (2017). Decreasing pica attempts by manipulating the environment to support prosocial behavior. *Journal of Developmental and Physical Disability, 29*(5), 683-697. <https://doi.org/10.1007/s10882-017-9548-y>
26. Shawler, L. A., & Miguel, C. F. (2015). The effects of motor and vocal response interruption and redirection on vocal stereotypy and appropriate vocalizations. *Behavioral Interventions, 30*(2), 112-134. <https://doi.org/10.1002/bin.1407>
27. Tiger, J. H., Wierzba, B. C., Fisher, W. W., & Benitez, B. B. (2017). Developing and demonstrating inhibitory stimulus control over repetitive behavior. *Behavioral Interventions, 32*(2), 160-174. <https://doi.org/10.1002/bin.1472>
28. Wells, J., Collier, L., & Sheehy, P. H. (2016). Decreasing vocal stereotypy of a youth with autism in a classroom setting. *Child & Family Behavior Therapy, 38*(2), 164-174. <https://doi.org/10.1080/07317107.2016.1172887>
29. Wunderlich, K. L., & Vollmer, T. R. (2015). Data analysis of response interruption and redirection as a treatment for vocal stereotypy. *Journal of Applied Behavior Analysis, 48*(4), 749-64. <https://doi.org/10.1002/jaba.227>

Name of EBP	Self-Management (SM)
Definition of EBP	Self-management (SM) is an intervention package that teaches learners to independently regulate their own behavior. Self-management involves teaching learners to discriminate between appropriate and inappropriate behaviors, accurately monitor and record their own behaviors, and reinforce themselves for behaving appropriately. Although learners may initially require adult support to accurately record behaviors and provide self-reinforcement, this support is faded over time. Self-management is often used in conjunction with other evidence-based practices including technology-mediated interventions, modeling, video modeling, and visual supports.

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication			✓			
	Social		✓	✓	✓		
	Joint attention						
	Play			✓	✓		
	Cognitive						
	School readiness		✓	✓	✓	✓	✓
	Academic/ Pre-academic		✓	✓			
	Adaptive/ self-help				✓	✓	
	Challenging/ Interfering behavior		✓	✓	✓	✓	
	Vocational				✓		✓
	Motor						
	Mental health						
	Self-determination			✓	✓		

References

- Bouck, E. C., Savage, M., Meyer, N. K., Taber-Doughty, T., & Hunley, M. (2014). High-tech or low-tech? Comparing self-monitoring systems to increase task independence for students with autism. *Focus on Autism and Other Developmental Disabilities, 29*(3), 156-167. <https://doi.org/10.1177/1088357614528797>
- Cihak, D. F., Wright, R., & Ayres, K. M. (2010). Use of self-modeling static-picture prompts via a handheld computer to facilitate self-monitoring in the general education classroom. *Education and Training in Developmental Disabilities, 45*(1), 136-149.
- Clemons, L. L., Mason, B. A., Garrison-Kane, L., & Wills, H. P. (2016). Self-monitoring for high school students with disabilities. *Journal of Positive Behavior Interventions, 18*(3), 145-155. <https://doi.org/10.1177/1098300715596134>
- Crutchfield, S. A., Mason, R. A., Chambers, A., Wills, H. P., & Mason, B. A. (2015). Use of a self-monitoring application to reduce stereotypic behavior in adolescents with autism: A preliminary investigation of I-Connect. *Journal of Autism and Developmental Disorders, 45*(5), 1146-55. <https://doi.org/10.1007/s10803-014-2272-x>
- Finn, L., Ramasamy, R., Dukes, C., & Scott, J. (2015). Using WatchMinder to increase the on-task behavior of students with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 45*(5), 1408-18. <https://doi.org/10.1007/s10803-014-2300-x>
- Fritz, J. N., Iwata, B. A., Rolider, N. U., Camp, E. M., & Neidert, P. L. (2012). Analysis of self-recording in self-management interventions for stereotypy. *Journal of Applied Behavior Analysis, 45*(1), 55-68. <https://doi.org/10.1901/jaba.2012.45-55>

7. Ganz, J. B., & Sigafoos, J. (2005). Self-monitoring: Are young adults with MR and autism able to utilize cognitive strategies independently? *Education and Training in Developmental Disabilities, 40*(1), 24-33.
8. Kern, L., Marder, T. J., Boyajian, A. E., Elliot, C. M., & McElhattan, D. (1997). Augmenting the independence of self-management procedures by teaching self-initiation across settings and activities. *School Psychology Quarterly, 12*(1), 23-32. <https://doi.org/10.1037/h0088944>
9. Koegel, L. K., Koegel, R. L., Hurley, C., & Frea, W. D. (1992). Improving social skills and disruptive behavior in children with autism through self-management. *Journal of Applied Behavior Analysis, 25*(2), 341-353. <https://doi.org/10.1901/jaba.1992.25-341>
10. Koegel, L. K., Park, M. N., & Koegel, R. L. (2014). Using self-management to improve the reciprocal social conversation of children with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 44*(5), 1055-63. <https://doi.org/10.1007/s10803-013-1956-y>
11. Koegel, R. L., & Frea, W. D. (1993). Treatment of social behavior in autism through the modification of pivotal social skills. *Journal of Applied Behavior Analysis, 26*(3), 369-377. <https://doi.org/10.1901/jaba.1993.26-369>
12. Koegel, R. L., & Koegel, L. K. (1990). Extended reductions in stereotypic behavior of students with autism through a self-management treatment package. *Journal of Applied Behavior Analysis, 23*(1), 119-127. <https://doi.org/10.1901/jaba.1990.23-119>
13. Liu, Y., Moore, D. W., & Anderson, A. (2015). Improving social skills in a child with autism spectrum disorder through self-management training. *Behaviour Change, 32*(4), 273-284. <https://doi.org/10.1017/bec.2015.14>
14. Loftin, R. L., Odom, S. L., & Lantz, J. F. (2008). Social interaction and repetitive motor behaviors. *Journal of Autism and Developmental Disorders, 38*(6), 1124-1135. <https://doi.org/10.1007/s10803-007-0499-5>
15. Mackay, B. A., Shochet, I. M., & Orr, J. A. (2017). A pilot randomised controlled trial of a school-based resilience intervention to prevent depressive symptoms for young adolescents with autism spectrum disorder: A mixed methods analysis. *Journal of Autism and Developmental Disorders, 47*(11), 3458-3478. <https://doi.org/10.1007/s10803-017-3263-5>
16. Mancina, C., Tankersley, M., Kamps, D., Kravits, T., & Parrett, J. (2000). Brief report: Reduction of inappropriate vocalizations for a child with autism using a self-management treatment program. *Journal of Autism and Developmental Disorders, 30*(6), 599-606. <https://doi.org/10.1023/A:1005695512163>
17. Moore, T. R. (2009). A brief report on the effects of a self-management treatment package on stereotypic behavior. *Research in Autism Spectrum Disorders, 3*(3), 695-701. <https://doi.org/10.1016/j.rasd.2009.01.010>
18. Newman, B. (1995). Self-management of schedule following in three teenagers with autism. *Behavioral Disorders, 20*(3), 190-96. <https://doi.org/10.1177/019874299502000304>
19. Reynolds, B. M., Gast, D. L., & Luscre, D. (2014). Self-management of social initiations by kindergarten students with disabilities in the general education classroom. *Journal of Positive Behavior Interventions, 16*(3), 137-148. <https://doi.org/10.1177/1098300713483176>
20. Rosenbloom, R., Mason, R. A., Wills, H. P., & Mason, B. A. (2016). Technology delivered self-monitoring application to promote successful inclusion of an elementary student with autism. *Assistive Technology, 28*(1), 44090. <https://doi.org/10.1080/10400435.2015.1059384>
21. Rouse, C. A., Everhart-Sherwood, J. M., & Alber-Morgan, S. R. (2014). Effects of self-monitoring and recruiting teacher attention on pre-vocational skills. *Education and Training in Autism and Developmental Disabilities, 49*(2), 313-327.
22. Shogren, K. A., Lang, R., Machalicek, W., Rispoli, M. J., & O'Reilly, M. (2011). Self- versus teacher management of behavior for elementary school students with Asperger syndrome: Impact on classroom behavior. *Journal of Positive Behavior Interventions, 13*(2), 87-96. <https://doi.org/10.1177/1098300710384508>
23. Soares, D. A., Vannest, K. J., & Harrison, J. (2009). Computer aided self-monitoring to increase academic production and reduce self-injurious behavior in a child with autism. *Behavioral Interventions, 24*(3), 171-183. <https://doi.org/10.1002/bin.283>
24. Stahmer, A. C., & Schreibman, L. (1992). Teaching children with autism appropriate play in unsupervised environments using a self-management treatment package. *Journal of Applied Behavior Analysis, 25*(2), 447-459. <https://doi.org/10.1901/jaba.1992.25-447>
25. Strain, P. S., Wilson, K., & Dunlap, G. (2011). Prevent-teach-reinforce: Addressing problem behaviors of students with autism in general education classrooms. *Behavioral Disorders-Journal of the Council for Children with Behavioral Disorders, 36*(3), 160-171. <https://doi.org/10.1177/019874291003600302>
26. Wiskow, K. M., & Klatt, K. P. (2013). The effects of awareness training on tics in a young boy with Tourette syndrome, Asperger syndrome, and attention deficit hyperactivity disorder. *Journal of Applied Behavior Analysis, 46*(3), 695-8. <https://doi.org/10.1002/jaba.59>




Name of EBP	Sensory Integration® (SI)
Definition of EBP	Sensory integration® (SI, Ayres, 1989) is a theory and practice that targets a person’s ability to process and internally integrate sensory information from their body and environment, including visual, auditory, tactile, proprioceptive, and vestibular input. SI uses individually tailored activities that challenge sensory processing and motor planning, encourage movement and organization of self in time and space, utilize “just right” challenges, and incorporate clinical equipment in purposeful and playful activities in order to improve adaptive behavior. SI is implemented by trained occupational therapists (OTs) and primarily takes place in clinical settings.

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓			
	Social		✓	✓	✓		
	Joint attention						
	Play						
	Cognitive		✓	✓			
	School readiness						
	Academic/ Pre-academic		✓	✓			
	Adaptive/ self-help		✓	✓			
	Challenging/ Interfering behavior		✓	✓	✓		
	Vocational						
	Motor		✓	✓	✓		
	Mental health						
	Self- determination						

References

1. Kashefimehr, B., Kayihan, H., & Huri, M. (2018). The effect of sensory integration therapy on occupational performance in children with autism. *OTJR: Occupation, Participation, and Health*, 38(2), 75-83. <https://doi.org/10.1177/1539449217743456>
2. Pfeiffer, B. A., Koenig, K., Kinnealey, M., Sheppard, M., & Henderson, L. (2011). Effectiveness of sensory integration interventions in children with autism spectrum disorders: A pilot study. *The American Journal of Occupational Therapy*, 65(1), 76-85. <https://doi.org/10.5014/ajot.2011.09205>
3. Schaaf, R. C., Benevides, T., Mailloux, Z., Faller, P., Hunt, J., van Hooydonk, E., Freeman, R., Leiby, B., Sendekci, J., & Kelly, D. (2014). An intervention for sensory difficulties in children with autism: A randomized trial. *Journal of Autism and Developmental Disorders*, 44(7), 1493-1506. <https://doi.org/10.1007/s10803-013-1983-8>

Name of EBP	Social Narratives (SN)
Definition of EBP	<p>Social Narratives (SN) are interventions that describe social situations in order to highlight relevant features of a target behavior or skill and offer examples of appropriate responding. Social narratives are aimed at helping learners adjust to changes in routine, adapt their behaviors based on the social and physical cues of a situation, or to teach specific social skills or behaviors. Social narratives are individualized according to learner needs and typically are quite short, often told in a story format, and often include pictures or other visual aids. Usually written in first person from the perspective of the learner, they include sentences that detail the situation, provide suggestions for appropriate learner responses, and describe the thoughts and feelings of other people involved in the situation.</p> <ul style="list-style-type: none"> Manualized Interventions Meeting Criteria: Social Stories™ (Gray, 2010).

		Age Ranges					
Outcome Areas		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓	✓	✓	
	Social		✓	✓	✓	✓	
	Joint attention		✓	✓			
	Play		✓	✓			
	Cognitive						
	School readiness			✓			
	Academic/ Pre-academic		✓	✓			
	Adaptive/ self-help		✓	✓			
	Challenging/ Interfering behavior		✓	✓	✓	✓	
	Vocational						
	Motor						
	Mental health						
	Self-determination						

References

- Bock, M. A. (2007). The impact of social-behavioral learning strategy training on the social interaction skills of four students with Asperger syndrome. *Focus on Autism and Other Developmental Disabilities, 22*(2), 88-95. <https://doi.org/10.1177/10883576070220020901>
- Campbell, A., & Tincani, M. (2011). The power card strategy: Strength-based intervention to increase direction following of children with autism spectrum disorder. *Journal of Positive Behavior Interventions, 13*(4), 240-249. <https://doi.org/10.1177/1098300711400608>
- Chan, J. M., & O'Reilly, M. F. (2008). A Social Stories™ intervention package for students with autism in inclusive classroom settings. *Journal of Applied Behavior Analysis, 41*(3), 405-409. <https://doi.org/10.1901/jaba.2008.41-405>
- Chan, J. M., O'Reilly, M. F., Lang, R. B., Boutot, E. A., White, P. J., Pierce, N., & Baker, S. (2011). Evaluation of a Social Stories™ intervention implemented by pre-service teachers for students with autism in general education settings. *Research in Autism Spectrum Disorders, 5*(2), 715-721. <https://doi.org/10.1016/j.rasd.2010.08.005>
- Daubert, A., Hornstein, S., & Tincani, M. (2015). Effects of a modified power card strategy on turn taking and social commenting of children with autism spectrum disorder playing board games. *Journal of Developmental and Physical Disabilities, 27*(1), 93-110. <https://doi.org/10.1007/s10882-014-9403-3>

6. Delano, M., & Snell, M. E. (2006). The effects of social stories on the social engagement of children with autism. *Journal of Positive Behavior Interventions*, 8(1), 29-42. <https://doi.org/10.1177/10983007060080010501>
7. Golzari, F., Alamdarloo, G. H., & Moradi, S. (2015). The effect of a social stories intervention on the social skills of male students with autism spectrum disorder. *SAGE Open*, 5(4). <https://doi.org/10.1177/2158244015621599>
8. Halle, S., Ninness, C., Ninness, S. K., & Lawson, D. (2016). Teaching social skills to students with autism: A video modeling social stories approach. *Behavior and Social Issues*, 25, 42-54. <https://doi.org/10.5210/bsi.v25i0.6190>
9. Hung, L. C., & Smith, C. S. (2011). Autism in Taiwan: Using Social Stories™ to decrease disruptive behaviour. *The British Journal of Developmental Disabilities*, 57(112), 71-80. <https://doi.org/10.1179/096979511798967197>
10. Ivey, M. L., Heflin, L. J., & Alberto, P. (2004). The use of Social Stories to promote independent behaviors in novel events for children with PDD-NOS. *Focus on Autism and Other Developmental Disabilities*, 19(3), 164-176. <https://doi.org/10.1177/10883576040190030401>
11. Kuttler, S., Myles, B. S., & Carlson, J. K. (1998). The use of social stories to reduce precursors to tantrum behavior in a student with autism. *Focus on Autism and Other Developmental Disabilities*, 13(3), 176-182. <https://doi.org/10.1177/108835769801300306>
12. Laprime, A. P., & Dittrich, G. A. (2014). An evaluation of a treatment package consisting of discrimination training and differential reinforcement with response cost and a social story on vocal stereotypy for a preschooler with autism in a preschool classroom. *Education & Treatment of Children*, 37(3), 407-430. <https://doi.org/10.1353/etc.2014.0028>
13. Leaf, J. B., Oppenheim-Leaf, M. L., Call, N. A., Sheldon, J. B., Sherman, J. A., Taubman, M., McEachin, J., Dayharsh, J., & Leaf, R. (2012). Comparing the teaching interaction procedure to social stories for people with autism. *Journal of Applied Behavior Analysis*, 45(2), 281-298. <https://doi.org/10.1901/jaba.2012.45-281>
14. Lorimer, P. A., Simpson, R. L., Myles, B. S., & Ganz, J. B. (2002). The use of social stories as a preventative behavioral intervention in a home setting with a child with autism. *Journal of Positive Behavior Interventions*, 4(1), 53-60. <https://doi.org/10.1177/109830070200400109>
15. Mancil, G. R., Haydon, T., & Whitby, P. (2009). Differentiated effects of paper and computer-assisted Social Stories™ on inappropriate behavior in children with autism. *Focus on Autism and Other Developmental Disabilities*, 24(4), 205-215. <https://doi.org/10.1177/1088357609347324>
16. Olcay-Gul, S., & Tekin-Iftar, E. (2016). Family generated and delivered social story intervention: Acquisition, maintenance, and generalization of social skills in youths with ASD. *Education and Training in Autism and Developmental Disabilities*, 51(1), 67-78.
17. Ozdemir, S. (2008). The effectiveness of social stories on decreasing disruptive behaviors of children with autism: Three case studies. *Journal of Autism and Developmental Disorders*, 38(9), 1689-1696. <https://doi.org/10.1007/s10803-008-0551-0>
18. Sansosti, F. J., & Powell-Smith, K. A. (2006). Using social stories to improve the social behavior of children with Asperger syndrome. *Journal of Positive Behavior Interventions*, 8(1), 43-57. <https://doi.org/10.1177/10983007060080010601>
19. Scattone, D. (2008). Enhancing the conversation skills of a boy with Asperger's disorder through Social Stories™ and video modeling. *Journal of Autism and Developmental Disorders*, 38(2), 395-400. <https://doi.org/10.1007/s10803-007-0392-2>
20. Scattone, D., Wilczynski, S. M., Edwards, R. P., & Rabian, B. (2002). Decreasing disruptive behaviors of children with autism using social stories. *Journal of Autism and Developmental Disorders*, 32(6), 535-543. <https://doi.org/10.1023/A:1021250813367>
21. Schneider, N., & Goldstein, H. (2010). Using Social Stories and visual schedules to improve socially appropriate behaviors in children with autism. *Journal of Positive Behavior Interventions*, 12(3), 149-160. <https://doi.org/10.1177/1098300709334198>

Name of EBP	Social Skills Training (SST)
Definition of EBP	<p>Social Skills Training (SST) is group or individual instruction designed to teach learners ways to appropriately and successfully participate in their interactions with others. This may include relationships with peers, family, co-workers, community members, and romantic partners. Most instructional sessions include direct instruction of basic concepts, role-play or practice, and feedback to help learners acquire and practice communication, play, or social skills to promote positive interactions with others. SST techniques often include other EBPs such as reinforcement, modeling, prompting, cognitive strategy interventions, social narratives, scripting, and visual supports.</p> <ul style="list-style-type: none"> Manualized Interventions Meeting Criteria: PEERS® (Laugeson & Frankel, 2010).

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓	✓	
	Social	✓	✓	✓	✓	✓	✓
	Joint attention						
	Play	✓	✓	✓	✓	✓	
	Cognitive		✓	✓	✓		
	School readiness			✓	✓		
	Academic/ Pre-academic						
	Adaptive/ self-help			✓	✓	✓	
	Challenging/ Interfering behavior		✓	✓	✓	✓	
	Vocational						
	Motor						
	Mental health			✓	✓	✓	
	Self- determination			✓	✓		

References

1. Baghdadli, A., Brisot, J., Henry, V., Michelon, C., Soussana, M., Rattaz, C., & Picot, M. C. (2013). Social skills improvement in children with high-functioning autism: A pilot randomized controlled trial. *European Child & Adolescent Psychiatry, 22*(7), 433-42. <https://doi.org/10.1007/s00787-013-0388-8>
2. Bambara, L. M., Cole, C. L., Kunsch, C., Tsai, S. C., & Ayad, E. (2016). A peer-mediated intervention to improve the conversational skills of high school students with autism spectrum disorder. *Research in Autism Spectrum Disorders, 27*, 29-43. <https://doi.org/10.1016/j.rasd.2016.03.003>
3. Beaumont, R., & Sofronoff, K. (2008). A multi-component social skills intervention for children with Asperger syndrome: The Junior Detective Training Program. *Journal of Child Psychology and Psychiatry, 49*(7), 743-753. <https://doi.org/10.1111/j.1469-7610.2008.01920.x>
4. Begeer, S., Gevers, C., Clifford, P., Verhoeve, M., Kat, K., Hoddenbach, E., & Boer, F. (2011). Theory of mind training in children with autism: A randomized controlled trial. *Journal of Autism and Developmental Disorders, 41*(8), 997-1006. <https://doi.org/10.1007/s10803-010-1121-9>
5. Begeer, S., Howlin, P., Hoddenbach, E., Clauser, C., Lindauer, R., Clifford, P., Gevers, C., Boer, F., & Koot, H. M. (2015). Effects and moderators of a short theory of mind intervention for children with autism spectrum disorder: A randomized controlled trial. *Autism Research, 8*(6), 738-748. <https://doi.org/10.1002/aur.1489>




6. Belchic, J. K., & Harris, S. L. (1994). The use of multiple peer exemplars to enhance the generalization of play skills to the siblings of children with autism. *Child & Family Behavior Therapy, 16*(2), 1-25. https://doi.org/10.1300/J019v16n02_01
7. Cheng, Y., Huang, C. L., & Yang, C. S. (2015). Using a 3D immersive virtual environment system to enhance social understanding and social skills for children with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 30*(4), 222-236. <https://doi.org/10.1177/1088357615583473>
8. Chin, H. Y., & Bernard-Opitz, V. (2000). Teaching conversational skills to children with autism: Effect on the development of a theory of mind. *Journal of Autism and Developmental Disorders, 30*(6), 569-583. <https://doi.org/10.1023/A:1005639427185>
9. Chung, U. S., Han, D. H., Shin, Y. J., & Renshaw, P. F. (2016). A prosocial online game for social cognition training in adolescents with high-functioning autism: An fMRI study. *Neuropsychiatric Disease and Treatment, 12*, 651-660. <https://doi.org/10.2147/ndt.s94669>
10. Corbett, B. A., Blain, S. D., Ioannou, S., & Balser, M. (2017). Changes in anxiety following a randomized control trial of a theatre-based intervention for youth with autism spectrum disorder. *Autism: The International Journal of Research and Practice, 21*(3), 333-343. <https://doi.org/10.1177/1362361316643623>
11. Corbett, B. A., Key, A. P., Qualls, L., Fecteau, S., Newsom, C., Coke, C., & Yoder, P. (2016). Improvement in social competence using a randomized trial of a theatre intervention for children with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 46*(2), 658-672. <https://doi.org/10.1007/s10803-015-2600-9>
12. de Veld, D. M. J., Howlin, P., Hoddenbach, E., Mulder, F., Wolf, I., Koot, H. M., Lindauer, R., & Begeer, S. (2017). Moderating effects of parental characteristics on the effectiveness of a theory of mind training for children with autism: A randomized controlled trial. *Journal of Autism and Developmental Disorders, 47*(7), 1987-1997. <https://doi.org/10.1007/s10803-017-3117-1>
13. Deckers, A., Muris, P., Roelofs, J., & Arntz, A. (2016). A group-administered social skills training for 8- to 12- year-old, high-functioning children with autism spectrum disorders: An evaluation of its effectiveness in a naturalistic outpatient treatment setting. *Journal of Autism and Developmental Disorders, 46*(11), 3493-3504. <https://doi.org/10.1007/s10803-016-2887-1>
14. Dolan, B., Hecke, A., Carson, A., Karst, J., Stevens, S., Schohl, K., Potts, S., Kahne, J., Linneman, N., Rimmel, R., & Hummel, E. (2016). Brief report: Assessment of intervention effects on in vivo peer interactions in adolescents with autism spectrum disorder (ASD). *Journal of Autism & Developmental Disorders, 46*(6), 2251-2259. <https://doi.org/10.1007/s10803-016-2738-0>
15. Feng, H., Lo, Y. Y., Tsai, S., & Cartledge, G. (2008). The effects of theory-of-mind and social skill training on the social competence of a sixth-grade student with autism. *Journal of Positive Behavior Interventions, 10*(4), 228-242. <https://doi.org/10.1177/1098300708319906>
16. Freitag, C.M., Jensen, K., Elsuni, L., Sachse, M., Herpertz-Dahlmann, B., Schulte-Ruther, M., Hanig, S., Gontard, A., Poustka, L., Schad-Hansjosten, T., Wenzl, C., Sinzig, J., Taurines, R., Geissler, J., Kieser, M., & Cholemkery, H. (2016). Group-based cognitive behavioural psychotherapy for children and adolescents with ASD: The randomized, multicentre, controlled SOSTA - net trial. *Journal of Child Psychology and Psychiatry, 57*(5), 596-605. <https://doi.org/10.1111/jcpp.12509>
17. Gonzalez-Lopez, A., & Kamps, D. M. (1997). Social skills training to increase social interactions between children with autism and their typical peers. *Focus on Autism and Other Developmental Disabilities, 12*(1), 43875. <https://doi.org/10.1177/108835769701200101>
18. Hood, S. A., Luczynski, K. C., & Mitteer, D. R. (2017). Toward meaningful outcomes in teaching conversation and greeting skills with individuals with autism spectrum disorder. *Journal of Applied Behavior Analysis, 50*(3), 459-486. <https://doi.org/10.1002/jaba.388>
19. Hui Shyuan N., A., Schulze, K., Rudrud, E., & Leaf, J. B. (2016). Using the teaching interactions procedure to teach social skills to children with autism and intellectual disability. *American Journal on Intellectual and Developmental Disabilities, 121*(6), 501-519. <https://doi.org/10.1352/1944-7558-121.6.501>
20. Jones, J., Lerman, D. C., & Lechago, S. (2014). Assessing stimulus control and promoting generalization via video modeling when teaching social responses to children with autism. *Journal of Applied Behavior Analysis, 47*(1), 37-50. <https://doi.org/10.1002/jaba.81>
21. Kassardjian, A., Leaf, J. B., Ravid, D., Leaf, J. A., Alcalay, A., Dale, S., Tsuji, K., Taubman, M., Leaf, R., McEachin, J., & Oppenheim-Leaf, M. L. (2014). Comparing the teaching interaction procedure to social stories: A replication study. *Journal of Autism and Developmental Disorders, 44*(9), 2329-40. <https://doi.org/10.1007/s10803-014-2103-0>
22. Koenig, K., White, S. W., Pachler, M., Lau, M., Lewis, M., Klin, A., & Scahill, L. (2010). Promoting social skill development in children with pervasive developmental disorders: A feasibility and efficacy study. *Journal of Autism and Developmental Disorders, 40*(10), 1209-1218. <https://doi.org/10.1007/s10803-010-0979-x>
23. Kroeger, K. A., Schultz, J. R., & Newsom, C. (2007). A comparison of two group-delivered social skills programs for young children with autism. *Journal of Autism and Developmental Disorders, 37*(5), 808-817. <https://doi.org/10.1007/s10803-006-0207-x>
24. Laugeson, E. A., Ellingsen, R., Sanderson, J., Tucci, L., & Bates, S. (2014). The ABC's of teaching social skills to adolescents with autism spectrum disorder in the classroom: The UCLA PEERS® program. *Journal of Autism and Developmental Disorders, 44*(9), 2244-2256. <https://doi.org/10.1007/s10803-014-2108-8>
25. Laugeson, E. A., Frankel, F., Mogil, C., & Dillon, A. R. (2009). Parent-assisted social skills training to improve friendships in teens with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 39*(4), 596-606. <https://doi.org/10.1007/s10803-008-0664-5>
26. Laushey, K. M., Heflin, L. J., Shippen, M., Alberto, P. A., & Fredrick, L. (2009). Concept mastery routines to teach social skills to elementary children with high functioning autism. *Journal of Autism and Developmental Disorders, 39*(10), 1435-1448. <https://doi.org/10.1007/s10803-009-0757-9>
27. Leaf, J. A., Leaf, J. B., Milne, C., Townley-Cochran, D., Oppenheim-Leaf, M. L., Cihon, J. H., Taubman, M., McEachin, J., & Leaf, R. (2016). The effects of the cool versus not cool procedure to teach social game play to individuals diagnosed with autism spectrum disorder. *Behavior Analysis in Practice, 9*(1), 34-49. <https://doi.org/10.1007/s40617-016-0112-5>
28. Leaf, J. B., Leaf, J. A., Milne, C., Taubman, M., Oppenheim-Leaf, M., Torres, N., Townley-Cochran, D., Leaf, R., McEachin, J., & Yoder, P. (2017). An evaluation of a behaviorally based social skills group for individuals diagnosed with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 47*(2), 243-259. <https://doi.org/10.1007/s10803-016-2949-4>

29. Leaf, J. B., Mitchell, E., Townley-Cochran, D., McEachin, J., Taubman, M., & Leaf, R. (2016). Comparing social stories to cool versus not cool. *Education & Treatment of Children, 39*(2), 173-186. <https://doi.org/10.1353/etc.2016.0006>
30. Leaf, J. B., Oppenheim-Leaf, M. L., Call, N. A., Sheldon, J. B., Sherman, J. A., Taubman, M., McEachin, J., Dayharsh, J., & Leaf, R. (2012). Comparing the teaching interaction procedure to social stories for people with autism. *Journal of Applied Behavior Analysis, 45*(2), 281-98. <https://doi.org/10.1901/jaba.2012.45-281>
31. Leaf, J. B., Taubman, M., Bloomfield, S., Palos-Rafuse, L., Leaf, R., McEachin, J., & Oppenheim, M. L. (2009). Increasing social skills and pro-social behavior for three children diagnosed with autism through the use of a teaching package. *Research in Autism Spectrum Disorders, 3*(1), 275-289. <https://doi.org/10.1016/j.rasd.2008.07.003>
32. Leaf, J. B., Taubman, M., Milne, C., Dale, S., Leaf, J., Townley-Cochran, D., Tsuji, K., Kassardjian, A., Alcalay, A., Leaf, R., & McEachin, J. (2016). Teaching social communication skills using a cool versus not cool procedure plus role-playing and a social skills taxonomy. *Education & Treatment of Children, 39*(1), 44-63.
33. Leaf, J. B., Tsuji, K. H., Griggs, B., Edwards, A., Taubman, M., McEachin, J., Leaf, R., & Oppenheim-Leaf, M. L. (2012). Teaching social skills to children with autism using the cool versus not cool procedure. *Education and Training in Autism and Developmental Disabilities, 47*(2), 165-175.
34. Lerner, M. D., & Mikami, A. Y. (2012). A preliminary randomized controlled trial of two social skills interventions for youth with high-functioning autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 27*(3), 147-157. <https://doi.org/10.1177/1088357612450613>
35. Lopata, C., Thomeer, M. L., Lipinski, A. M., Donnelly, J. P., Nelson, A. T., Smith, R. A., Booth, A. J., Rodgers, J. D., & Volker, M. A. (2015). RCT examining the effect of treatment intensity for a psychosocial treatment for high-functioning children with ASD. *Research in Autism Spectrum Disorders, 17*, 52-63. <https://doi.org/10.1016/j.rasd.2015.06.002>
36. Lopata, C., Thomeer, M. L., Rodgers, J. D., Donnelly, J. P., & McDonald, C. A. (2016). RCT of mind reading as a component of a psychosocial treatment for high-functioning children with ASD. *Research in Autism Spectrum Disorders, 21*, 25-36. <https://doi.org/10.1016/j.rasd.2015.09.003>
37. Lopata, C., Thomeer, M. L., Volker, M. A., Toomey, J. A., Nida, R. E., Lee, G. K., Smerbeck, A., & Rodgers, J. D. (2010). RCT of a manualized social treatment for high-functioning autism spectrum disorders. *Journal of Autism and Developmental Disorders, 40*(11), 1297-1310. <https://doi.org/10.1007/s10803-010-0989-8>
38. Mackay, B. A., Shochet, I. M., & Orr, J. A. (2017). A pilot randomised controlled trial of a school-based resilience intervention to prevent depressive symptoms for young adolescents with autism spectrum disorder: A mixed methods analysis. *Journal of Autism and Developmental Disorders, 47*(11), 3458-3478. <https://doi.org/10.1007/s10803-017-3263-5>
39. Nelson, C., McDonnell, A. P., Johnston, S. S., Crompton, A., & Nelson, A. R. (2007). Keys to play: A strategy to increase the social interactions of young children with autism and their typically developing peers. *Education and Training in Developmental Disabilities, 42*(2), 165-181.
40. Olsson, N. C., Flygare, O., Coco, C., Gorling, A., Rade, A., Chen, Q., Lindstedt, K., Berggren, S., Serlachius, E., Jonsson, U., Tammimies, K., Kjellin, L., & Bolte, S. (2017). Social skills training for children and adolescents with autism spectrum disorder: A randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 56*(7), 585-592. <https://doi.org/10.1016/j.jaac.2017.05.001>
41. Owens, G., Granader, Y., Humphrey, A., & Baron-Cohen, S. (2008). LEGO® therapy and the social use of language programme: An evaluation of two social skills interventions for children with high functioning autism and Asperger syndrome. *Journal of Autism and Developmental Disorders, 38*(10), 1944-1957. <https://doi.org/10.1007/s10803-008-0590-6>
42. Ozonoff, S., & Miller, J. N. (1995). Teaching theory of mind: A new approach to social skills training for individuals with autism. *Journal of Autism and Developmental Disorders, 25*(4), 415-433. <https://doi.org/10.1007/BF02179376>
43. Palmen, A., Didden, R., & Arts, M. (2008). Improving question asking in high-functioning adolescents with autism spectrum disorders: Effectiveness of small-group training. *Autism, 12*(1), 83-98. <https://doi.org/10.1177/1362361307085265>
44. Persicke, A., Tarbox, J., Ranick, J., & St. Clair, M. (2013). Teaching children with autism to detect and respond to sarcasm. *Research in Autism Spectrum Disorders, 7*(1), 193-198. <https://doi.org/10.1016/j.rasd.2012.08.005>
45. Peters, B., Tullis, C. A., & Gallagher, P. A. (2016). Effects of a group teaching interaction procedure on the social skills of students with Autism Spectrum Disorders. *Education and Training in Autism and Developmental Disabilities, 51*(4), 421-433.
46. Plavnick, J. B., Kaid, T., & MacFarland, M. C. (2015). Effects of a school-based social skills training program for adolescents with autism spectrum disorder and intellectual disability. *Journal of Autism and Developmental Disorders, 45*(9), 2674-90. <https://doi.org/10.1007/s10803-015-2434-5>
47. Plavnick, J. B., Sam, A. M., Hume, K., & Odom, S. L. (2013). Effects of video-based group instruction for adolescents with autism spectrum disorder. *Exceptional Children, 80*(1), 67-83.
48. Radley, K. C., Dart, E. H., Moore, J. W., Battaglia, A. A., & LaBrot, Z. C. (2017). Promoting accurate variability of social skills in children with autism spectrum disorder. *Behavior Modification, 41*(1), 84-112. <https://doi.org/10.1177/0145445516655428>
49. Radley, K., Ford, W., McHugh, M., Dadakhodjaeva, K., O'Handley, R., Battaglia, A., & Lum, J. (2015). Brief report: Use of superheroes social skills to promote accurate social skill use in children with autism spectrum disorder. *Journal of Autism & Developmental Disorders, 45*, 3048-3054. <https://doi.org/10.1007/s10803-015-2442-5>
50. Radley, K. C., Hanglein, J., & Arak, M. (2016). School-based social skills training for preschool-age children with autism spectrum disorder. *Autism: The International Journal of Research and Practice, 20*(8), 938-951. <https://doi.org/10.1177/1362361315617361>
51. Radley, K. C., McHugh, M. B., Taber, T., Battaglia, A. A., & Ford, W. B. (2017). School-based social skills training for children with autism spectrum disorder. *Focus Autism Other Developmental Disabilities, 32*(4), 256-268. <https://doi.org/10.1177/1088357615583470>
52. Radley, K. C., O'Handley, R. D., Battaglia, A. A., Lum, J. D. K., Dadakhodjaeva, K., Ford, W. B., & McHugh, M. B. (2017). Effects of a social skills intervention on children with autism spectrum disorder and peers with shared deficits. *Education and Treatment of Children, 40*(2), 233-262. <https://doi.org/10.1353/etc.2017.0011>
53. Radley, K. C., O'Handley, R. D., Ness, E. J., Ford, W. B., Battaglia, A. A., McHugh, M. B., & McLemore, C. E. (2014). Promoting social skill use and generalization in children with autism spectrum disorder. *Research in Autism Spectrum Disorders, 8*(6), 669-680. <https://doi.org/10.1016/j.rasd.2014.03.012>

54. Rice, L. M., Wall, C. A., Fogel, A., & Shic, F. (2015). Computer-assisted face processing instruction improves emotion recognition, mentalizing, and social skills in students with ASD. *Journal of Autism and Developmental Disorders*, *45*(7), 2176-2186. <https://doi.org/10.1007/s10803-015-2380-2>
55. Rodgers, J. D., Thomeer, M. L., Lopata, C., Volker, M. A., Lee, G. K., McDonald, C. A., Smith, R. A., & Biscotto, A. A. (2015). RCT of a psychosocial treatment for children with high-functioning ASD: Supplemental analyses of treatment effects on facial emotion encoding. *Journal of Developmental and Physical Disabilities*, *27*(2), 207-221. <https://doi.org/10.1007/s10882-014-9409-x>
56. Russo-Ponsaran, N., Evans-Smith, B., Johnson, J., Russo, J., & McKown, C. (2016). Efficacy of a facial emotion training program for children and adolescents with autism spectrum disorders. *Journal of Nonverbal Behavior*, *40*(1), 13-38. <https://doi.org/10.1007/s10919-015-0217-5>
57. Ryan, C., & Charragáin, C. N. (2010). Teaching emotion recognition skills to children with autism. *Journal of Autism and Developmental Disorders*, *40*(12), 1505-1511. <https://doi.org/10.1007/s10803-010-1009-8>
58. Ryan, G., Brady, S., Holloway, J., & Lydon, H. (2017). Increasing appropriate conversation skills using a behavioral skills training package for adults with intellectual disability and autism spectrum disorder. *Journal of Intellectual and Developmental Disabilities*, *23*(4), 567-580. <https://doi.org/10.1177/1744629517750744>
59. Schiltz, H. K., McVey, A. J., Dolan, B. K., Willar, K. S., Pleiss, Sheryl, K., Jeffrey S., Carson, A. M., Caiozzo, C., Vogt, E. M., Yund, B. D., & Hecke, A. V. (2017). Changes in depressive symptoms among adolescents with ASD completing the PEERS® social skills intervention. *Journal of Autism and Developmental Disorders*, *48*(3), 834-843. <https://doi.org/10.1007/s10803-017-3396-6>
60. Schmidt, C., & Stichter, J. P. (2012). The use of peer-mediated interventions to promote the generalization of social competence for adolescents with high-functioning autism and Asperger's syndrome. *Exceptionality*, *20*(2), 94-113. <https://doi.org/10.1080/09362835.2012.669303>
61. Schohl, K. A., Van Hecke, A. V., Carson, A. M., Dolan, B., Karst, J., & Stevens, S. (2014). A replication and extension of the PEERS intervention: Examining effects on social skills and social anxiety in adolescents with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *44*(3), 532-45. <https://doi.org/10.1007/s10803-013-1900-1>
62. Sivaraman, M. (2017). Using multiple exemplar training to teach empathy skills to children with autism. *Behavior Analysis in Practice*, *10*(4), 337-346. <https://doi.org/10.1007/s40617-017-0183-y>
63. Soorya, L. V., Siper, P. M., Beck, T., Soffes, S., Halpern, D., Gorenstein, M., Kolevzon, A., Buxbaum, J., & Wang, A. T. (2015). Randomized comparative trial of a social cognitive skills group for children with autism spectrum disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *54*(3), 208-216. <https://doi.org/10.1016/j.jaac.2014.12.005>
64. Szumski, G., Smogorzewska, J., Grygiel, P., & Orlando, A. M. (2017). Examining the effectiveness of naturalistic social skills training in developing social skills and theory of mind in preschoolers with ASD. *Journal of Autism and Developmental Disorders*, *49*(7), 2822-2837. <https://doi.org/10.1007/s10803-017-3377-9>
65. Thomeer, M. L., Lopata, C., Donnelly, J. P., Booth, A., Shanahan, A., Federiconi, V., McDonald, C. A., & Rodgers, J. D. (2016). Community effectiveness RCT of a comprehensive psychosocial treatment for high-functioning children with ASD. *Journal of Clinical Child and Adolescent Psychology* *48*(S1), S119-130. <https://doi.org/10.1080/15374416.2016.1247359>
66. Thomeer, M. L., Lopata, C., Volker, M. A., Toomey, J. A., Lee, G. K., Smerbeck, A. M., Rodgers, J. D., McDonald, C. A., & Smith, R. A. (2012). Randomized clinical trial replication of a psychosocial treatment for children with high-functioning autism spectrum disorders. *Psychology in the Schools*, *49*(10), 942-954. <https://doi.org/10.1002/pits.21647>
67. Vernon, T., Miller, A., Ko, J., Barrett, A., & McGarry, E. (2017). A randomized controlled trial of the social tools and rules for teens (start) program: An immersive socialization intervention for adolescents with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *48*(3), 892-904. <https://doi.org/10.1007/s10803-017-3380-1>
68. Vincent, L. B., Openden, D., Gentry, J. A., Long, L. A., & Matthews, N. L. (2018). Promoting social learning at recess for children with ASD and related social challenges. *Behavior Analysis in Practice*, *11*(1), 19-33. <https://doi.org/10.1007/s40617-017-0178-8>
69. Visser, K., Greaves-Lord, K., Tick, N. T., Verhulst, F. C., Maras, A., & van der Vegt, E. J. M. (2017). A randomized controlled trial to examine the effects of the tackling teenage psychosexual training program for adolescents with autism spectrum disorder. *Journal of Child Psychology and Psychiatry*, *58*(7), 840-850. <https://doi.org/10.1111/jcpp.12709>
70. Waugh, C., & Peskin, J. (2015). Improving the social skills of children with HFASD: An intervention study. *Journal of Autism and Developmental Disorders*, *45*(9), 2961-2980. <https://doi.org/10.1007/s10803-015-2459-9>
71. White, S. W., Ollendick, T., Albano, A. M., Oswald, D., Johnson, C., Southam-Gerow, M. A., Kim, I., & Scahill, L. (2013). Randomized controlled trial: Multimodal anxiety and social skill intervention for adolescents with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *43*(2), 382-394. <https://doi.org/10.1007/s10803-012-1577-x>
72. Williams, B. T., Gray, K. M., & Tonge, B. J. (2012). Teaching emotion recognition skills to young children with autism: A randomised controlled trial of an emotion training programme. *Journal of Child Psychology and Psychiatry*, *53*(12), 1268-1276. <https://doi.org/10.1111/j.1469-7610.2012.02593.x>
73. Yang, N. K., Schaller, J. L., Huang, T. A., Wang, M. H., & Tsai, S. F. (2003). Enhancing appropriate social behaviors for children with autism in general education classrooms: An analysis of six cases. *Education and Training in Developmental Disabilities*, *38*(4), 405-416.
74. Yoo, H. J., Bahn, G., Cho, I. H., Kim, E. K., Kim, J. H., Min, J. W., Lee, W. H., Seo, J. S., Jun, S. S., Bong, G., Cho, S., Shin, M. S., Kim, B. N., Kim, J. W., Park, S., & Laugeson, E. A. (2014). A randomized controlled trial of the Korean version of the PEERS parent-assisted social skills training program for teens with ASD. *Autism Research*, *7*(1), 145-61. <https://doi.org/10.1002/aur.1354>

Name of EBP	Task Analysis (TA)
Definition of EBP	

Task analysis (TA) is the process of breaking down a complex or “chained” behavioral skill into smaller components in order to teach a skill. The learner can be taught to perform individual steps of the chain progressively until the entire skill is mastered (also called “forward chaining”), or the learner may be taught to perform individual steps beginning with the final step and progressively moving back through the chain of skills until the whole task is mastered from the beginning (backward chaining). TA may also be used to present a whole task to a learner at once with clear steps on how to achieve the skill from start to finish. Other practices, such as reinforcement, video modeling, or time delay, should be used to facilitate learning of the smaller steps. As the smaller steps are mastered, the learner becomes more independent in his/her ability to perform the larger skill.

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓	✓		
	Social			✓			
	Joint attention		✓		✓		
	Play				✓		
	Cognitive						
	School readiness						
	Academic/ Pre-academic			✓	✓		
	Adaptive/ self-help		✓	✓			
	Challenging/ Interfering behavior						
	Vocational				✓	✓	✓
	Motor			✓			
	Mental health						
	Self-determination						

References

- Bennett, K. D., Ramasamy, R., & Honsberger, T. (2013). The effects of covert audio coaching on teaching clerical skills to adolescents with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 43(3), 585-93. <https://doi.org/10.1007/s10803-012-1597-6>
- Browder, D. M., Trela, K., & Jimenez, B. (2007). Training teachers to follow a task analysis to engage middle school students with moderate and severe developmental disabilities in grade-appropriate literature. *Focus on Autism and Other Developmental Disabilities*, 22(4), 206-219. <https://doi.org/10.1177/10883576070220040301>
- Cihak, D. F., Wright, R., Smith, C. C., McMahon, D., & Kraiss, K. (2015). Incorporating functional digital literacy skills as part of the curriculum for high school students with intellectual disability. *Education and Training in Autism and Developmental Disabilities*, 50(2), 155-171.
- Lambert, J. M., Copeland, B. A., Karp, E. L., Finley, C. I., Houchins-Juarez, N. J., & Ledford, J. R. (2016). Chaining functional basketball sequences (with embedded conditional discriminations) in an adolescent with autism. *Behavior Analysis in Practice*, 9(3), 199-210. <https://doi.org/10.1007/s40617-016-0125-0>
- Martins, M. P., & Harris, S. L. (2006). Teaching children with autism to respond to joint attention initiations. *Child & Family Behavior Therapy*, 28(1), 51-68. https://doi.org/10.1300/J019v28n01_04

6. Matson, J. L., Taras, M. E., Sevin, J. A., Love, S. R., & Fridley, D. (1990). Teaching self-help skills to autistic and mentally retarded children. *Research in Developmental Disabilities, 11*(4), 361-378. [https://doi.org/10.1016/0891-4222\(90\)90023-2](https://doi.org/10.1016/0891-4222(90)90023-2)
7. Morse, T. E., & Schuster, J. W. (2000). Teaching elementary students with moderate intellectual disabilities how to shop for groceries. *Exceptional Children, 66*(2), 273-288. <https://doi.org/10.1177/001440290006600210>
8. Parker, D., & Kamps, D. (2011). Effects of task analysis and self-monitoring for children with autism in multiple social settings. *Focus on Autism and Other Developmental Disabilities, 26*(3), 131-142. <https://doi.org/10.1177/1088357610376945>
9. Spooner, F., Kemp-Inman, A., Ahlgrim-Dezell, L., Wood, L., & Davis, L. L. (2015). Generalization of literacy skills through portable technology for students with severe disabilities. *Research and Practice for Persons with Severe Disabilities, 40*(1), 52-70. <https://doi.org/10.1177/1540796915586190>
10. Tarbox, J., Madrid, W., Aguilar, B., Jacobo, W., & Schiff, A. (2009). Use of chaining to increase complexity of echoics in children with autism. *Journal of Applied Behavior Analysis, 42*(4), 901. <https://doi.org/10.1901/jaba.2009.42-901>
11. Tekin-Iftar, E., & Birkan, B. (2010). Small group instruction for students with autism: General case training and observational learning. *The Journal of Special Education, 44*(1), 50-63. <https://doi.org/10.1177/0022466908325219>
12. Yılmaz, Đ., Birkan, B., Konukman, F., & Erkan, M. (2005). Using a constant time delay procedure to teach aquatic play skills to children with autism. *Education and Training in Developmental Disabilities, 40*(2), 171-182.
13. Yılmaz, Đ., Konukman, F., Birkan, B., Ozen, A., Yanardağ, M., & Camursoy, I. (2010). Effects of constant time delay procedure on the Halliwick's method of swimming rotation skills for children with autism. *Education and Training in Autism and Developmental Disabilities, 45*(1), 124-135.

Name of EBP	Technology-Aided Instruction and Intervention (TAII)
Definition of EBP	<p>Technology-Aided Instruction and Interventions (TAII) are those in which technology is the central feature of an intervention. Given the rapid rise in the inclusion of technology in interventions, this evidence base is more focused to include technology that is specifically designed or employed to support the learning or performance of a behavior or skill for a learner. Interventions that use a more general form of technology to deliver an alternative EBP (e.g., displaying a visual support on a mobile device, video modeling, alarm on a phone as part of self-management) are not included in this evidence base. TAII includes technologies such as robots, computer or web-based software, applications for devices, and virtual networks. The common features of these interventions are the technology itself (as noted) and instructional procedures for learning to use the technology or supporting its use in appropriate contexts.</p> <ul style="list-style-type: none"> Manualized Interventions Meeting Criteria: MindReading software, FaceSay™ (Symbionica, LLC) software Note: Augmentative and alternative communication (AAC) that incorporates technology is part of the evidence base for AAC and not TAII.

		Age Ranges					
Outcome Areas		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓	✓	✓
	Social		✓	✓	✓	✓	✓
	Joint attention		✓	✓	✓	✓	✓
	Play		✓	✓			
	Cognitive	✓	✓	✓	✓	✓	
	School readiness		✓	✓	✓	✓	
	Academic/ Pre-academic		✓	✓	✓	✓	✓
	Adaptive/ self-help	✓	✓	✓			✓
	Challenging/ Interfering behavior		✓	✓	✓		
	Vocational						
	Motor	✓	✓	✓			
	Mental health		✓	✓	✓		
	Self-determination						

References


- *Bailey, B., Arciuli, J., & Stancliffe, R. J. (2017a). Effects of ABRACADABRA instruction on spelling in children with autism spectrum disorder. *Scientific Studies of Reading, 21*(2), 146-164. <https://doi.org/10.1080/10888438.2016.1276183>
- Bailey, B., Arciuli, J., & Stancliffe, R. J. (2017b). Effects of ABRACADABRA literacy instruction on children with autism spectrum disorder. *Journal of Educational Psychology, 109*(2), 257-268. <https://doi.org/10.1037/edu0000138>
- Beaumont, R., & Sofronoff, K. (2008). A multi-component social skills intervention for children with Asperger syndrome: The Junior Detective Training Program. *Journal of Child Psychology and Psychiatry, 49*(7), 743-753. <https://doi.org/10.1111/j.1469-7610.2008.01920.x>

4. Cheng, Y., Huang, C. L., & Yang, C. S. (2015). Using a 3D immersive virtual environment system to enhance social understanding and social skills for children with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 30*(4), 222-236. <https://doi.org/10.1177/1088357615583473>
5. Clemons, L. L., Mason, B. A., Garrison-Kane, L., & Wills, H. P. (2016). Self-monitoring for high school students with disabilities. *Journal of Positive Behavior Interventions, 18*(3), 145-155. <https://doi.org/10.1177/1098300715596134>
6. Costescu, C. A., Vanderborght, B., & David, D. O. (2015). Reversal learning task in children with autism spectrum disorder: A robot-based approach. *Journal of Autism and Developmental Disorders, 45*(11), 3715-3725. <https://doi.org/10.1007/s10803-014-2319-z>
7. Costescu, C. A., Vanderborght, B., & David, D. O. (2017). Robot-enhanced CBT for dysfunctional emotions in social situations for children with ASD. *Journal of Evidence-Based Psychotherapies, 17*(2), 119-132. <https://doi.org/10.24193/jebp.2017.2.7>
8. Crutchfield, S. A., Mason, R. A., Chambers, A., Wills, H. P., & Mason, B. A. (2015). Use of a self-monitoring application to reduce stereotypic behavior in adolescents with autism: A preliminary investigation of I-Connect. *Journal of Autism and Developmental Disorders, 45*(5), 1146-55. <https://doi.org/10.1007/s10803-014-2272-x>
9. Dickinson, K., & Place, M. (2016). The impact of a computer-based activity program on the social functioning of children with autistic spectrum disorder. *Games for Health Journal, 5*(3), 209-215. <https://doi.org/10.1089/g4h.2015.0063>
10. Elicin, O., & Tunali, V. (2016). Effectiveness of tablet computer use in achievement of schedule-following skills by children with autism using graduated guidance. *Education and Science, 41*(183), 29-46. <https://doi.org/10.15390/EB.2016.5358>
11. Faja, S., Aylward, E., Bernier, R., & Dawson, G. (2007). Becoming a face expert: A computerized face-training program for high-functioning individuals with autism spectrum disorders. *Developmental Neuropsychology, 33*(1), 438-54. <https://doi.org/10.1080/87565640701729573>
12. Fridenson-Hayo, S., Berggren, S., Lassalle, A., Tal, S., Pigat, D., Meir-Goren, N., O'Reilly, H., Ben-Zur, S., Bolte, S., Baron-Cohen, S., & Golan, O. (2017). 'Emotiplay': A serious game for learning about emotions in children with autism: Results of a cross-cultural evaluation. *European Child and Adolescent Psychiatry, 26*(8), 979-992. <https://doi.org/10.1007/s00787-017-0968-0>
13. Golan, O., & Baron-Cohen, S. (2006). Systemizing empathy: Teaching adults with Asperger syndrome or high-functioning autism to recognize complex emotions using interactive multimedia. *Development and Psychopathology, 18*(2), 591. <https://doi.org/10.1017/S0954579406060305>
14. Golan, O., Ashwin, E., Granader, Y., McClintock, S., Day, K., Leggett, V., & Baron-Cohen, S. (2010). Enhancing emotion recognition in children with autism spectrum conditions: An intervention using animated vehicles with real emotional faces. *Journal of Autism and Developmental Disorders, 40*(3), 269-279. <https://doi.org/10.1007/s10803-009-0862-9>
15. Hopkins, I. M., Gower, M. W., Perez, T. A., Smith, D. S., Amthor, F. R., Wimsatt, F. C., & Biasini, F. J. (2011). Avatar assistant: Improving social skills in students with an ASD through a computer-based intervention. *Journal of Autism and Developmental Disorders, 41*(11), 1543-1555. <https://doi.org/10.1007/s10803-011-1179-z>
16. Knight, V. F., Wood, C. L., Spooner, F., Browder, D. M., & O'Brien, C. P. (2015). An exploratory study using science etexts with students with autism spectrum disorder. *Focus on Autism and Other Developmental Disabilities, 30*(2), 86-99. <https://doi.org/10.1177/1088357614559214>
17. Kodak, T., Fisher, W. W., Clements, A., & Bouxsein, K. J. (2011). Effects of computer-assisted instruction on correct responding and procedural integrity during early intensive behavioral intervention. *Research in Autism Spectrum Disorders, 5*(1), 640-647. <https://doi.org/10.1016/j.rasd.2010.07.011>
18. LeBlanc, B. A., Kodak, T., Cariveau, T., & Campbell, V. (2017). A comparison of computer-assisted and therapist-led instruction for children with autism spectrum disorder. *Behavioral Interventions, 32*(2), 133-143. <https://doi.org/10.1002/bin.1471>
19. Lopata, C., Thomeer, M. L., Rodgers, J. D., Donnelly, J. P., & McDonald, C. A. (2016). RCT of mind reading as a component of a psychosocial treatment for high-functioning children with ASD. *Research in Autism Spectrum Disorders, 21*, 25-36. <https://doi.org/10.1016/j.rasd.2015.09.003>
20. McMahon, D., Cihak, D. F., & Wright, R. (2015). Augmented reality as a navigation tool to employment opportunities for postsecondary education students with intellectual disabilities and autism. *Journal of Research on Technology in Education, 47*(3), 157-172. <https://doi.org/10.1080/15391523.2015.1047698>
21. Moore, M., & Calvert, S. (2000). Brief report: Vocabulary acquisition for children with autism: Teacher or computer instruction. *Journal of Autism and Developmental Disorders, 30*(4), 359-362. <https://doi.org/10.1023/A:1005535602064>
22. Neely, L., Rispoli, M., Camargo, S., Davis, H., & Boles, M. (2013). The effect of instructional use of an iPad on challenging behavior and academic engagement for two students with autism. *Research in Autism Spectrum Disorders, 7*(4), 509-516. <https://doi.org/10.1016/j.rasd.2012.12.004>
23. Oliver, P., & Brady, M. P. (2014). Effects of covert audio coaching on parents' interactions with young children with Autism. *Behavior Analysis in Practice, 7*(2), 112-6. <https://doi.org/10.1007/s40617-014-0015-2>
24. Pennington, R. C., Collins, B. C., Stenhoff, D. M., Turner, K., & Gunselman, K. (2014). Using simultaneous prompting and computer-assisted instruction to teach narrative writing skills to students with Autism. *Education and Training in Autism and Developmental Disabilities, 49*(3), 396-414.
25. Rice, L. M., Wall, C. A., Fogel, A., & Shic, F. (2015). Computer-assisted face processing instruction improves emotion recognition, mentalizing, and social skills in students with ASD. *Journal of Autism and Developmental Disorders, 45*(7), 2176-2186. <https://doi.org/10.1007/s10803-015-2380-2>
26. Rosenbloom, R., Mason, R. A., Wills, H. P., & Mason, B. A. (2016). Technology delivered self-monitoring application to promote successful inclusion of an elementary student with autism. *Assistive Technology, 28*(1), 44090. <https://doi.org/10.1080/10400435.2015.1059384>
27. Russo-Ponsaran, N., Evans-Smith, B., Johnson, J., Russo, J., & McKown, C. (2016). Efficacy of a facial emotion training program for children and adolescents with autism spectrum disorders. *Journal of Nonverbal Behavior, 40*(1), 13-38. <https://doi.org/10.1007/s10919-015-0217-5>
28. Saadatzi, M. N., Pennington, R. C., Welch, K. C., Graham, J. H., & Scott, R. E. (2017). The use of an autonomous pedagogical agent and automatic speech recognition for teaching sight words to students with autism spectrum disorder. *Journal of Special Education Technology, 32*(3), 173-183. <https://doi.org/10.1177/0162643417715751>

29. Schneider, A. B., Coddling, R. S., & Tryon, G. S. (2013). Comparing and combining accommodation and remediation interventions to improve the written-language performance of children with Asperger syndrome. *Focus on Autism and Other Developmental Disabilities, 28*(2), 101-114. <https://doi.org/10.1177/1088357613475811>
30. Serret, S., Hun, S., Thummler, S., Pierron, P., Santos, A., Bourgeois, J., & Askenazy, F. (2017). Teaching literacy skills to French minimally verbal school-aged children with autism spectrum disorders with the Serious Game SEMA-TIC: An exploratory study. *Frontiers in Psychology, 8*, 1-16. <https://doi.org/10.3389/fpsyg.2017.01523>
31. Silver, M., & Oakes, P. (2001). Evaluation of a new computer intervention to teach people with autism or Asperger syndrome to recognize and predict emotions in others. *Autism, 5*(3), 299-316. <https://doi.org/10.1177/1362361301005003007>
32. So, W. C., Wong, M. K., Lam, C. K., Lam, W. Y., Chui, A. T., Lee, T. L., Ng, H. M., Chan, C. H., & Fok, D. C. (2017). Using a social robot to teach gestural recognition and production in children with autism spectrum disorders. *Disability and Rehabilitation: Assistive Technology, 13*(6), 527-539. <https://doi.org/10.1080/17483107.2017.1344886>
33. Spooner, F., Ahlgrim-Delzell, L., Kemp-Inman, A., & Wood, L. A. (2014). Using an iPad2 with systematic instruction to teach shared stories for elementary-aged students with autism. *Research & Practice for Persons with Severe Disabilities, 39*(1), 30-46. <https://doi.org/10.1177/1540796914534631>
34. Spooner, F., Kemp-Inman, A., Ahlgrim-Delzell, L., Wood, L., & Davis, L. L. (2015). Generalization of literacy skills through portable technology for students with severe disabilities. *Research and Practice for Persons with Severe Disabilities, 40*(1), 52-70. <https://doi.org/10.1177/1540796915586190>
35. *Srinivasan, S. M., Eigsti, I. M., Gifford, T., & Bhat, A. N. (2016). The effects of embodied rhythm and robotic interventions on the spontaneous and responsive verbal communication skills of children with Autism Spectrum Disorder (ASD): A further outcome of a pilot randomized controlled trial. *Research in Autism Spectrum Disorders, 27*, 73-87. <https://doi.org/10.1016/j.rasd.2016.04.001>
36. *Srinivasan, S. M., Eigsti, I. M., Neelly, L., & Bhat, A. N. (2016). The effects of embodied rhythm and robotic interventions on the spontaneous and responsive social attention patterns of children with Autism Spectrum Disorder (ASD): A pilot randomized controlled trial. *Research in Autism Spectrum Disorders, 27*, 54-72. <https://doi.org/10.1016/j.rasd.2016.01.004>
37. Srinivasan, S. M., Park, I. K., Neelly, L. B., & Bhat, A. N. (2015). A comparison of the effects of rhythm and robotic interventions on repetitive behaviors and affective states of children with Autism Spectrum Disorder (ASD). *Research in Autism Spectrum Disorders, 18*, 51-63. <https://doi.org/10.1016/j.rasd.2015.07.004>
38. Stromer, R., Mackay, H. A., Howell, S. R., McVay, A. A., & Flusser, D. (1996). Teaching computer-based spelling to individuals with developmental and hearing disabilities: Transfer of stimulus control to writing tasks. *Journal of Applied Behavior Analysis, 29*(1), 25-42. <https://doi.org/10.1901/jaba.1996.29-25>
39. Thomeer, M. L., Smith, R. A., Lopata, C., Volker, M. A., Lipinski, A. M., Rodgers, J. D., McDonald, C. A., & Lee, G. K. (2015). Randomized controlled trial of mind reading and in vivo rehearsal for high-functioning children with ASD. *Journal of Autism and Developmental Disorders, 45*(7), 2115-27. <https://doi.org/10.1007/s10803-015-2374-0>
40. Velez-Coto, M., Rodriguez-Fortiz, M. J., Rodriguez-Almendros, M. L., Cabrera-Cuevas, M., Rodriguez-Dominguez, C., Ruiz-Lopez, T., Burgos-Pulido, A., Garrido-Jimenez, I., & Martos-Perez, J. (2017). SIGUEME: Technology-based intervention for low-functioning autism to train skills to work with visual signifiers and concepts. *Research in Developmental Disabilities, 64*, 25-36. <https://doi.org/10.1016/j.ridd.2017.02.008>
41. Whalen, C., Moss, D., Ilan, A. B., Vaupel, M., Fielding, P., Macdonald, K., Cernich, S., & Symon, J. (2010). Efficacy of TeachTown: Basics computer-assisted intervention for the intensive comprehensive autism program in Los Angeles Unified School District. *Autism, 14*(3), 179-197. <https://doi.org/10.1177/1362361310363282>
42. Whitehouse, A. J. O., Granich, J., Alvares, G., Busacca, M., Cooper, M. N., Dass, A., Duong, T., Harper, R., Marshall, W., Richdale, A., Rodwell, T., Trembath, D., Vellanki, P., Moore, D. W., & Anderson, A. (2017). A randomised controlled trial of an iPad-based application to complement early behavioural intervention in Autism Spectrum Disorder. *Journal of Child Psychology and Psychiatry, 58*(9), 1042-1052. <https://doi.org/10.1111/jcpp.12752>
43. Yun, S. S., Choi, J., Park, S. K., Bong, G. Y., & Yoo, H. (2017). Social skills training for children with autism spectrum disorder using a robotic behavioral intervention system. *Autism Research, 10*(7), 1306-1323. <https://doi.org/10.1002/aur.1778>

* indicates articles that are either secondary data analysis or follow-up for an article already included in the list

Name of EBP	Time Delay (TD)
Definition of EBP	Time delay (TD) is a practice used to systematically fade the use of prompts during instructional activities. With this procedure, a brief delay is provided between the initial instruction and any additional instructions or prompts. The evidence-based research focuses on two types of time delay procedures: progressive and constant. With progressive time delay, the practitioner gradually increases the waiting time between an instruction and any prompts that might be used to elicit a response from a learner. As the learner becomes more proficient at using the skill, the practitioner gradually increases the waiting time between the instruction and the prompt. In constant time delay, a fixed amount of time is always used between the instruction and the prompt as the learner becomes more proficient at using the new skill. Time delay is always used in conjunction with a prompting procedure (e.g., least-to-most prompting, simultaneous prompting, graduated guidance).

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓	✓		✓
	Social	✓	✓	✓	✓		
	Joint attention	✓	✓	✓			
	Play		✓	✓			
	Cognitive		✓	✓			
	School readiness		✓	✓		✓	✓
	Academic/ Pre-academic		✓	✓	✓		✓
	Adaptive/ self-help		✓	✓	✓	✓	✓
	Challenging/ Interfering behavior		✓	✓			
	Vocational			✓	✓	✓	✓
	Motor		✓				
	Mental health						
	Self- determination						

References

- Akmanoglu, N., Kurt, O., & Kapan, A. (2015). Comparison of simultaneous prompting and constant time delay procedures in teaching children with autism the responses to questions about personal information. *Educational Sciences: Theory and Practice, 15*(3), 723-737. <https://doi.org/10.12738/estp.2015.3.2654>
- Alison, C., Root, J. R., Browder, D. M., & Wood, L. (2017). Technology-based shared story reading for students with autism who are English-language learners. *Journal of Special Education Technology, 32*(2), 91-101. <https://doi.org/10.1177/0162643417690606>
- Browder, D. M., Root, J. R., Wood, L., & Allison, C. (2017). Effects of a story-mapping procedure using the iPad on the comprehension of narrative texts by students with autism spectrum disorder. *Focus on Autism Other Developmental Disabilities, 32*(4), 243-255. <https://doi.org/10.1177/1088357615611387>
- Carlisle, K. A., Reeve, S. A., Reeve, K. F., & DeBar, R. M. (2013). Using activity schedules on the iPod touch to teach leisure skills to children with autism. *Education & Treatment of Children, 36*(2), 33-57. <https://doi.org/10.1353/etc.2013.0015>
- Cihak, D. F. (2007). Teaching students with autism to read pictures. *Research in Autism Spectrum Disorders, 1*(4), 318-329. <https://doi.org/10.1016/j.rasd.2006.12.002>

6. Collins, B. C., Hager, K. L., & Galloway, C. C. (2011). Addition of functional content during core content instruction with students with moderate disabilities. *Education and Training in Autism and Developmental Disabilities, 46*(1), 22-39.
7. Dotto-Fojut, K. M., Reeve, K. F., Townsend, D. B., & Progar, P. R. (2011). Teaching adolescents with autism to describe a problem and request assistance during simulated vocational tasks. *Research in Autism Spectrum Disorders, 5*(2), 826-833. <https://doi.org/10.1016/j.rasd.2010.09.012>
8. Hua, Y., Woods-Groves, S., Kaldenberg, E. R., & Scheidecker, B. J. (2013). Effects of vocabulary instruction using constant time delay on expository reading of young adults with intellectual disability. *Focus on Autism and Other Developmental Disabilities, 28*(2), 89-100. <https://doi.org/10.1177/1088357613477473>
9. Ingenmey, R., & Houten, R. (1991). Using time delay to promote spontaneous speech in an autistic child. *Journal of Applied Behavior Analysis, 24*(3), 24-591. <https://doi.org/10.1901/jaba.1991.24-591>
10. Ingvarsson, E. T., & Hollobaugh, T. (2010). Acquisition of intraverbal behavior: Teaching children with autism to mand for answers to questions. *Journal of Applied Behavior Analysis, 43*(1), 438-47. <https://doi.org/10.1901/jaba.2010.43-1>
11. Jimenez, B. A., & Kemmerly, M. (2013). Building the early numeracy skills of students with moderate intellectual disability. *Education and Training in Autism and Developmental Disabilities, 48*(4), 479-490.
12. Kodak, T., Fisher, W. W., Clements, A., & Bouxsein, K. J. (2011). Effects of computer-assisted instruction on correct responding and procedural integrity during early intensive behavioral intervention. *Research in Autism Spectrum Disorders, 5*(1), 640-647. <https://doi.org/10.1016/j.rasd.2010.07.011>
13. Krstovska-Guerrero, I., & Jones, E. A. (2016). Social-communication intervention for toddlers with Autism Spectrum Disorder: Eye gaze in the context of requesting and joint attention. *Journal of Developmental and Physical Disabilities, 28*(2), 289-316. <https://doi.org/10.1007/s10882-015-9466-9>
14. Leung, J. P. (1994). Teaching spontaneous requests to children with autism using a time delay procedure with multi-component toys. *Journal of Behavioral Education, 4*(1), 21-31. <https://doi.org/10.1007/BF01560506>
15. Leung, J. P., & Chan, O. T. (1993). Teaching spontaneous verbal requests to Chinese children with autism using a time delay procedure. *Bulletin of the Hong Kong Psychological Society, 30-31*, 47-58.
16. Liber, D. B., Frea, W. D., & Symon, J. B. (2008). Using time-delay to improve social play skills with peers for children with autism. *Journal of Autism and Developmental Disorders, 38*(2), 312-323. <https://doi.org/10.1007/s10803-007-0395-z>
17. Lorah, E., Tincani, M., Dodge, J., Gilroy, S., Hickey, A., & Hantula, D. (2013). Evaluating picture exchange and the iPad as a speech generating device to teach communication to young children with Autism. *Journal of Developmental & Physical Disabilities, 25*(6), 637-649. <https://doi.org/10.1007/s10882-013-9337-1>
18. Matson, J. L., Sevin, J. A., Fridley, D., & Love, S. R. (1990). Increasing spontaneous language in three autistic children. *Journal of Applied Behavior Analysis, 23*(2), 227-233. <https://doi.org/10.1901/jaba.1990.23-227>
19. Miller, C., Collins, B. C., & Hemmeter, M. L. (2002). Using a naturalistic time delay procedure to teach nonverbal adolescents with moderate-to-severe mental disabilities to initiate manual signs. *Journal of Developmental and Physical Disabilities, 14*(3), 247-261. <https://doi.org/10.1023/A:1016072321661>
20. Muzammal, M. S., & Jones, E. A. (2016). Social-communication intervention for toddlers with autism spectrum disorder: Effects on initiating joint attention and interactions with mother. *Journal of Developmental and Physical Disabilities, 29*, 203-221. <https://doi.org/10.1007/s10882-016-9519-8>
21. Reichow, B., & Wolery, M. (2011). Comparison of progressive prompt delay with and without instructive feedback. *Journal of Applied Behavior Analysis, 44*(2), 327-340. <https://doi.org/10.1901/jaba.2011.44-327>
22. Rogers, L., Hemmeter, M. L., & Wolery, M. (2010). Using a constant time delay procedure to teach foundational swimming skills to children with autism. *Topics in Early Childhood Special Education, 30*(2), 102-111. <https://doi.org/10.1177/0271121410369708>
23. Saadatzi, M. N., Pennington, R. C., Welch, K. C., Graham, J. H., & Scott, R. E. (2017). The use of an autonomous pedagogical agent and automatic speech recognition for teaching sight words to students with autism spectrum disorder. *Journal of Special Education Technology, 32*(3), 173-183. <https://doi.org/10.1177/0162643417715751>
24. Schrandt, J. A., Townsend, D. B., & Poulson, C. L. (2009). Teaching empathy skills to children with autism. *Journal of Applied Behavior Analysis, 42*(1), 17-32. <https://doi.org/10.1901/jaba.2009.42-17>
25. Shepley, C., Lane, J. D., & Gast, D. L. (2016). Using SMART board technology to teach young students with disabilities and limited group learning experience to read environmental text. *Education and Training in Autism and Developmental Disabilities, 51*(4), 404-420.
26. Silbaugh, B. C., Falcomata, T. S., & Ferguson, R. H. (2018). Effects of a lag schedule of reinforcement with progressive time delay on topographical mand variability in children with autism. *Developmental Neurorehabilitation, 21*(3), 166-177. <https://doi.org/10.1080/17518423.2017.1369190>
27. Smith, K. A., Ayres, K. A., Alexander, J., Ledford, J. R., Shepley, C., & Shepley, S. B. (2016). Initiation and generalization of self-instructional skills in adolescents with autism and intellectual disability. *Journal of Autism and Developmental Disorders, 46*(4), 1196-1209. <https://doi.org/10.1007/s10803-015-2654-8>
28. Spooner, F., Kemp-Inman, A., Ahlgrim-Dezell, L., Wood, L., & Davis, L. L. (2015). Generalization of literacy skills through portable technology for students with severe disabilities. *Research and Practice for Persons with Severe Disabilities, 40*(1), 52-70. <https://doi.org/10.1177/1540796915586190>
29. Swain, R., Lane, J. D., & Gast, D. L. (2015). Comparison of constant time delay and simultaneous prompting procedures: Teaching functional sight words to students with intellectual disabilities and autism spectrum disorder. *Journal of Behavioral Education, 24*(2), 210-229. <https://doi.org/10.1007/s10864-014-9209-5>
30. Taylor, B. A., & Harris, S. L. (1995). Teaching children with autism to seek information: Acquisition of novel information and generalization of responding. *Journal of Applied Behavior Analysis, 28*(1), 3-14. <https://doi.org/10.1901/jaba.1995.28-3>
31. Venn, M. L., Wolery, M., Werts, M. G., Morris, A., DeCesare, L. D., & Cuffs, M. S. (1993). Embedding instruction in art activities to teach preschoolers with disabilities to imitate their peers. *Early Childhood Research Quarterly, 8*(3), 277-294. [https://doi.org/10.1016/S0885-2006\(05\)80068-7](https://doi.org/10.1016/S0885-2006(05)80068-7)

Name of EBP	Video Modeling (VM)
Definition of EBP	Video modeling (VM) is a method of instruction that uses video technology to record and show a demonstration of the targeted behavior or skill. The demonstration is shown to the learner, who then has an opportunity to perform the target behavior either in the moment or at a later point in time. Types of video modeling include adult or peer as video model, video self-modeling, point-of-view video modeling, video prompting, and video feedback. Video modeling is often used with other EBPs such as task analysis, prompting, and reinforcement strategies.

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication	✓	✓	✓	✓	✓	
	Social		✓	✓	✓	✓	✓
	Joint attention	✓	✓	✓			
	Play	✓	✓	✓	✓	✓	
	Cognitive			✓			
	School readiness		✓	✓	✓	✓	
	Academic/ Pre-academic		✓	✓	✓	✓	✓
	Adaptive/ self-help		✓	✓	✓	✓	✓
	Challenging/ Interfering behavior		✓	✓	✓		
	Vocational			✓	✓	✓	✓
	Motor		✓	✓			✓
	Mental health						
	Self-determination						

References

1. Akmanoglu, N. (2015). Effectiveness of teaching naming facial expression to children with autism via video modeling. *Educational Sciences: Theory & Practice*, 15(2), 519-537. <https://doi.org/10.12738/estp.2015.2.2603>
2. Akmanoglu, N., & Tekin-Iftar, E. (2011). Teaching children with autism how to respond to the lures of strangers. *Autism*, 15(2), 205-222. <https://doi.org/10.1177/1362361309352180>
3. Aldi, C., Crigler, A., Kates-McElrath, K., Long, B., Smith, H., Rehak, K., & Wilkinson, L. (2016). Examining the effects of video modeling and prompts to teach activities of daily living skills. *Behavior Analysis in Practice*, 9(4), 384-388. <https://doi.org/10.1007/s40617-016-0127-y>
4. Allen, K. D., Vatland, C., Bowen, S. L., & Burke, R. V. (2015). An evaluation of parent-produced video self-modeling to improve independence in an adolescent with intellectual developmental disorder and an autism spectrum disorder: A controlled case study. *Behavior Modification*, 39(4), 542-56. <https://doi.org/10.1177/0145445515583247>
5. Allen, K. D., Wallace, D. P., Greene, D. J., Bowen, S. L., & Burke, R. V. (2010). Community-based vocational instruction using videotaped modeling for young adults with autism spectrum disorders performing in air-inflated mascots. *Focus on Autism and Other Developmental Disabilities*, 25(3), 186-192. <https://doi.org/10.1177/1088357610377318>
6. Apple, A. L., Billingsley, F., Schwartz, I. S., & Carr, E. G. (2005). Effects of video modeling alone and with self-management on compliment-giving behaviors of children with high-functioning ASD. *Journal of Positive Behavior Interventions*, 7(1), 33-46. <https://doi.org/10.1177/1098300705007010401>

7. Bennett, K. D., Crocco, C., Loughrey, T. O., & McDowell, L. S. (2017). Effects of video prompting without voice-over narration among students with autism spectrum disorder. *Behavioral Development Bulletin*, 22(1), 147-158. <https://doi.org/10.1037/bdb0000058>
8. Bennett, K. D., Gutierrez, A., & Honsberger, T. (2013). A comparison of video prompting with and without voice-over narration on the clerical skills of adolescents with Autism. *Research in Autism Spectrum Disorders*, 7(10), 1273-1281. <https://doi.org/10.1016/j.rasd.2013.07.013>
9. Bennett, K. D., Gutierrez, A., & Loughrey, T. O. (2016). Comparison of screen sizes when using video prompting to teach adolescents with autism. *Education and Training in Autism and Developmental Disabilities*, 51(4), 379-390.
10. Berezna, S., Ayres, K. M., Mechling, L. C., & Alexander, J. L. (2012). Video self-prompting and mobile technology to increase daily living and vocational independence for students with autism spectrum disorders. *Journal of Developmental and Physical Disabilities*, 24(3), 269-285. <https://doi.org/10.1007/s10882-012-9270-8>
11. Besler, F., & Kurt, O. (2016). Effectiveness of video modeling provided by mothers in teaching play skills to children with autism. *Education Sciences: Theory and Practice*, 16(1), 209-230. <https://doi.org/10.12738/estp.2016.1.0273>
12. Boudreau, J., & Harvey, M. T. (2013). Increasing recreational initiations for children who have ASD using video self modeling. *Education & Treatment of Children*, 36(1), 49-60. <https://doi.org/10.1353/etc.2013.0006>
13. Buggey, T., Hoomes, G., Sherberger, M. E., & Williams, S. (2011). Facilitating social initiations of preschoolers with autism spectrum disorders using video self-modeling. *Focus on Autism and Other Developmental Disabilities*, 26(1), 25-36. <https://doi.org/10.1177/1088357609344430>
14. Buggey, T., Toombs, K., Gardener, P., & Cervetti, M. (1999). Training responding behaviors in students with autism using videotaped self-modeling. *Journal of Positive Behavior Interventions*, 1(4), 205-214. <https://doi.org/10.1177/109830079900100403>
15. Burckley, E., Tincani, M., & Guld Fisher, A. (2015). An iPad-based picture and video activity schedule increases community shopping skills of a young adult with autism spectrum disorder and intellectual disability. *Developmental Neurorehabilitation*, 18(2), 131-6. <https://doi.org/10.3109/17518423.2014.945045>
16. Burton, C. E., Anderson, D. H., Prater, M. A., & Dyches, T. T. (2013). Video self-modeling on an iPad to teach functional math skills to adolescents with autism and intellectual disability. *Focus on Autism and Other Developmental Disabilities*, 28(2), 67-77. <https://doi.org/10.1177/1088357613478829>
17. Cannella-Malone, H. I., Fleming, C., Chung, Y. C., Wheeler, G. M., Basbagill, A. R., & Singh, A. H. (2011). Teaching daily living skills to seven individuals with severe intellectual disabilities: A comparison of video prompting to video modeling. *Journal of Positive Behavior Interventions*, 13(3), 144-153. <https://doi.org/10.1177/1098300710366593>
18. Cannella-Malone, H. I., Sabielny, L. M., Jimenez, E. D., Page, E. J., Miller, M., & Miller, O. (2015). Use of continuous video prompting to teach a student with a significant disability. *Journal of Developmental and Physical Disabilities*, 27(6), 745-754. <https://doi.org/10.1007/s10882-015-9448-y>
19. Cardon, T. A. (2012). Teaching caregivers to implement video modeling imitation training via iPad for their children with autism. *Research in Autism Spectrum Disorders*, 6(4), 1389-1400. <https://doi.org/10.1016/j.rasd.2012.06.002>
20. Charlop-Christy, M. H., & Daneshvar, S. (2003). Using video modeling to teach perspective taking to children with autism. *Journal of Positive Behavior Interventions*, 5(1), 21-21. <https://doi.org/10.1177/10983007030050010101>
21. Charlop-Christy, M. H., Le, L., & Freeman, K. A. (2000). A comparison of video modeling with in vivo modeling for teaching children with autism. *Journal of Autism and Developmental Disorders*, 30(6), 537-552. <https://doi.org/10.1023/A:1005635326276>
22. Charlop, M. H., Dennis, B., Carpenter, M. H., & Greenberg, A. L. (2010). Teaching socially expressive behaviors to children with autism through video modeling. *Education and Treatment of Children*, 33(3), 371-393. <https://doi.org/10.1353/etc.0.0104>
23. Cihak, D. F. (2011). Comparing pictorial and video modeling activity schedules during transitions for students with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 5(1), 433-441. <https://doi.org/10.1016/j.rasd.2010.06.006>
24. Cihak, D., Fahrenkrog, C., Ayres, K. M., & Smith, C. (2010). The use of video modeling via a video iPod and a system of least prompts to improve transitional behaviors for students with autism spectrum disorders in the general education classroom. *Journal of Positive Behavior Interventions*, 12(2), 103-115. <https://doi.org/10.1177/1098300709332346>
25. Cihak, D. F., Smith, C. C., Cornett, A., & Coleman, M. B. (2012). The use of video modeling with the picture exchange communication system to increase independent communicative initiations in preschoolers with autism and developmental delays. *Focus on Autism and Other Developmental Disabilities*, 27(1), 43901. <https://doi.org/10.1177/1088357611428426>
26. Coyle, C., & Cole, P. (2004). A videotaped self-modelling and self-monitoring treatment program to decrease off-task behaviour in children with autism. *Journal of Intellectual and Developmental Disability*, 29(1), 3-15. <https://doi.org/10.1080/08927020410001662642>
27. Cullen, J. M., Alber-Morgan, S. R., Simmons-Reed, E. A., & Izzo, M. V. (2017). Effects of self-directed video prompting using iPads on the vocational task completion of young adults with intellectual and developmental disabilities. *Journal of Vocational Rehabilitation*, 46(3), 361-375. <https://doi.org/10.3233/JVR-170873>
28. D'Ateno, P., Mangiapanello, K., & Taylor, B. A. (2003). Using video modeling to teach complex play sequences to a preschooler with autism. *Journal of Positive Behavior Interventions*, 5(1), 5-11. <https://doi.org/10.1177/10983007030050010801>
29. Day-Watkins, J., Murray, R., & Connell, J. E. (2014). Teaching helping to adolescents with autism. *Journal of Applied Behavior Analysis*, 47(4), 850-5. <https://doi.org/10.1002/jaba.156>
30. English, D. L., Gounden, S., Dagher, R. E., Chan, S. F., Furlonger, B. E., Anderson, A., & Moore, D. W. (2017). Effects of video modeling with video feedback on vocational skills of adults with autism spectrum disorder. *Developmental Neurorehabilitation*, 20(8), 511-524. <https://doi.org/10.1080/17518423.2017.1282051>
31. Ergenekon, Y., Tekin-Iftar, E., Kapan, A., & Akmanoglu, N. (2014). Comparison of video and live modeling in teaching response chains to children with autism. *Education and Training in Autism and Developmental Disabilities*, 49(2), 200-213.
32. Genc-Tosun, D., & Kurt, O. (2017). Effects of video modeling on the instructional efficiency of simultaneous prompting among preschoolers with autism spectrum disorder. *Education and Training in Autism and Developmental Disabilities*, 52(3), 291-304.

33. Goodson, J., Sigafos, J., O'Reilly, M., Cannella, H., & Lancioni, G. E. (2007). Evaluation of a video-based error correction procedure for teaching a domestic skill to individuals with developmental disabilities. *Research in Developmental Disabilities, 28*(5), 458-467. <https://doi.org/10.1016/j.ridd.2006.06.002>
34. Grosberg, D., & Charlop, M. (2014). Teaching persistence in social initiation bids to children with autism through a portable video modeling intervention (PVMi). *Journal of Developmental and Physical Disabilities, 26*(5), 527-541. <https://doi.org/10.1007/s10882-013-9362-0>
35. Gutierrez, A., Bennett, K. D., McDowell, L. S., Cramer, E. D., & Crocco, C. (2016). Comparison of video prompting with and without voice-over narration: A replication with young children with autism. *Behavioral Interventions, 31*(4), 377-389. <https://doi.org/10.1002/bin.1456>
36. Halle, S., Ninness, C., Ninness, S. K., & Lawson, D. (2016). Teaching social skills to students with autism: A video modeling social stories approach. *Behavior and Social Issues, 25*, 42-54. <https://doi.org/10.5210/bsi.v25i0.6190>
37. Haring, T. G., Breen, C. G., Weiner, J., Kennedy, C. H., & Bednersh, F. (1995). Using videotape modeling to facilitate generalized purchasing skills. *Journal of Behavioral Education, 5*(1), 29-53. <https://doi.org/10.1007/BF02110213>
38. Harris, G. M., Little, S. G., & Akin-Little, A. (2017). Video self-modelling as an intervention for remediating dysgraphia in children with autism spectrum disorders. *Australian Journal of Learning Difficulties, 22*(2), 153-170. <https://doi.org/10.1080/19404158.2017.1397525>
39. Hart, J. E., & Whalon, K. J. (2012). Using video self-modeling via iPads to increase academic responding of an adolescent with autism spectrum disorder and intellectual disability. *Education and Training in Autism and Developmental Disabilities, 47*(4), 438-446.
40. Hayes, G. R., Custodio, V. E., Haimson, O. L., Nguyen, K., Ringland, K. E., Ulgado, R. R., Waterhouse, A., & Weiner, R. (2015). Mobile video modeling for employment interviews for individuals with autism. *Journal of Vocational Rehabilitation, 43*(3), 275-287. <https://doi.org/10.3233/JVR-150775>
41. Hine, J. F., & Wolery, M. (2006). Using point-of-view video modeling to teach play to preschoolers with autism. *Topics in Early Childhood Special Education, 26*(2), 83-93. <https://doi.org/10.1177/02711214060260020301>
42. Jowett, E. L., Moore, D. W., & Anderson, A. (2012). Using an iPad-based video modelling package to teach numeracy skills to a child with an autism spectrum disorder. *Developmental Neurorehabilitation, 15*(4), 304-12. <https://doi.org/10.3109/17518423.2012.682168>
43. Jung, S., & Sainato, D. M. (2015). Teaching games to young children with autism spectrum disorder using special interests and video modelling. *Journal of Intellectual and Developmental Disability, 40*(2), 198-212. <https://doi.org/10.3109/13668250.2015.1027674>
44. Kellems, R. O., Frandsen, K., Hansen, B., Gabrielsen, T., Clarke, B., Simons, K., & Clements, K. (2016). Teaching multi-step math skills to adults with disabilities via video prompting. *Research in Developmental Disabilities, 58*, 31-44. <https://doi.org/10.1016/j.ridd.2016.08.013>
45. Kim, J. (2017). Effects of point-of-view video modeling for Korean adolescents with autism to improve their on-task behavior and independent task performance during vegetable gardening. *International Journal of Developmental Disabilities, 64*(4-5), 297-308. <https://doi.org/10.1080/20473869.2017.1341449>
46. Kim, S. (2016). Use of video modeling to teach developmentally appropriate play with Korean American children with Autism. *Research & Practice for Persons with Severe Disabilities, 41*(3), 158-172. <https://doi.org/10.1177/1540796916658015>
47. Kleeberger, V., & Miranda, P. (2010). Teaching generalized imitation skills to a preschooler with autism using video modeling. *Journal of Positive Behavior Interventions, 12*(2), 116-127. <https://doi.org/10.1177/1098300708329279>
48. Kroeger, K. A., Schultz, J. R., & Newsom, C. (2007). A comparison of two group-delivered social skills programs for young children with autism. *Journal of Autism and Developmental Disorders, 37*(5), 808-817. <https://doi.org/10.1007/s10803-006-0207-x>
49. LeBlanc, L. A., Coates, A. M., Daneshvar, S., Charlop-Christy, M. H., Morris, C., & Lancaster, B. M. (2003). Using video modeling and reinforcement to teach perspective-taking skills to children with autism. *Journal of Applied Behavior Analysis, 36*(2), 253-257. <https://doi.org/10.1901/jaba.2003.36-253>
50. Ledbetter-Cho, K., Lang, R., Davenport, K., Moore, M., Lee, A., O'Reilly, M., Watkins, L., & Falcomata, T. (2016). Behavioral skills training to improve the abduction-prevention skills of children with Autism. *Behavior Analysis in Practice, 9*(3), 266-70. <https://doi.org/10.1007/s40617-016-0128-x>
51. Ledbetter-Cho, K., Lang, R., Moore, M., Davenport, K., Murphy, C., Lee, A., O'Reilly, M., & Watkins, L. (2017). Effects of video-enhanced activity schedules on academic skills and collateral behaviors in children with autism. *International Journal of Developmental Disabilities, 63*(4), 228-237. <https://doi.org/10.1080/20473869.2017.1290022>
52. Lee, S. Y., Lo, Y. Y., & Lo, Y. F. (2017). Teaching functional play skills to a young child with autism spectrum disorder through video self-modeling. *Journal of Autism and Developmental Disorders, 47*(8), 2295-2306. <https://doi.org/10.1007/s10803-017-3147-8>
53. Liu, Y., Moore, D. W., & Anderson, A. (2015). Improving social skills in a child with autism spectrum disorder through self-management training. *Behaviour Change, 32*(4), 273-284. <https://doi.org/10.1017/bec.2015.14>
54. MacManus, C., MacDonald, R., & Ahearn, W. H. (2015). Teaching and generalizing pretend play in children with autism using video modeling and matrix training. *Behavioral Interventions, 30*(3), 191-218. <https://doi.org/10.1002/bin.1406>
55. Macpherson, K., Charlop, M. H., & Miltenberger, C. A. (2015). Using portable video modeling technology to increase the compliment behaviors of children with Autism during athletic group play. *Journal of Autism and Developmental Disorders, 45*(12), 3836-45. <https://doi.org/10.1007/s10803-014-2072-3>
56. Maione, L., & Miranda, P. (2006). Effects of video modeling and video feedback on peer-directed social language skills of a child with autism. *Journal of Positive Behavior Interventions, 8*(2), 106-118. <https://doi.org/10.1177/10983007060080020201>
57. Marcus, A., & Wilder, D. A. (2009). A comparison of peer video modeling and self video modeling to teach textual responses in children with autism. *Journal of Applied Behavior Analysis, 42*(2), 335-341. <https://doi.org/10.1901/jaba.2009.42-335>
58. Marzullo-Kerth, D., Reeve, S. A., Reeve, K. F., & Townsend, D. B. (2011). Using multiple-exemplar training to teach a generalized repertoire of sharing to children with autism. *Journal of Applied Behavior Analysis, 44*(2), 279-294. <https://doi.org/10.1901/jaba.2011.44-279>
59. Mason, R. A., Rispoli, M., Ganz, J. B., Boles, M. B., & Orr, K. (2012). Effects of video modeling on communicative social skills of college students with Asperger syndrome. *Developmental Neurorehabilitation, 15*(6), 425-34. <https://doi.org/10.3109/17518423.2012.704530>

60. Mechling, L. C., & Ayres, K. M. (2012). A comparative study: completion of fine motor office related tasks by high school students with autism using video models on large and small screen sizes. *Journal of Autism and Developmental Disorders*, 42(11), 2364-73. <https://doi.org/10.1007/s10803-012-1484-1>
61. Mechling, L. C., Ayres, K. M., Bryant, K. J., & Foster, A. L. (2014a). Comparison of the effects of continuous video modeling, video prompting, and video modeling on task completion by young adults with moderate intellectual disability. *Education and Training in Autism and Developmental Disabilities*, 49(4), 491-504.
62. Mechling, L. C., Ayres, K. M., Bryant, K. J., & Foster, A. L. (2014b). Continuous video modeling to assist with completion of multi-step home living tasks by young adults with moderate intellectual disability. *Education and Training in Autism and Developmental Disabilities*, 49(3), 368-380.
63. Mechling, L. C., Ayres, K. M., Foster, A. L., & Bryant, K. J. (2013). Comparing the effects of commercially available and custom-made video prompting for teaching cooking skills to high school students with autism. *Remedial and Special Education*, 34(6), 371-383. <https://doi.org/10.1177/0741932513494856>
64. Mechling, L. C., Ayres, K. M., Foster, A. L., & Bryant, K. J. (2015). Evaluation of generalized performance across materials when using video technology by students with autism spectrum disorder and moderate intellectual disability. *Focus on Autism and Other Developmental Disabilities*, 30(4), 208-221. <https://doi.org/10.1177/1088357614528795>
65. Mechling, L. C., Gast, D. L., & Seid, N. H. (2009). Using a personal digital assistant to increase independent task completion by students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 39(10), 1420-1434. <https://doi.org/10.1007/s10803-009-0761-0>
66. Mechling, L. C., & Savidge, E. J. (2011). Using a personal digital assistant to increase completion of novel tasks and independent transitioning by students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 41(6), 687-704. <https://doi.org/10.1007/s10803-010-1088-6>
67. Mechling, L. C., & Swindle, C. O. (2013). Fine and gross motor task performance when using computer-based video models by students with autism and moderate intellectual disability. *Journal of Special Education*, 47(3), 135-147. <https://doi.org/10.1177/0022466911433859>
68. Mechling, L. C., & Youhouse, I. R. (2012). Comparison of task performance by students with autism and moderate intellectual disability when presenting video models on large and small screen sizes. *Journal of Special Education Technology*, 27(1), 43844. <https://doi.org/10.1177/016264341202700101>
69. Miltenberger, C. A., & Charlop, M. H. (2015). The comparative effectiveness of portable video modeling vs. traditional video modeling interventions with children with autism spectrum disorders. *Journal of Developmental and Physical Disabilities*, 27(3), 341-358. <https://doi.org/10.1007/s10882-014-9416-y>
70. Moore, D. W., Anderson, A., Treccase, F., Deppeler, J., Furlonger, B., & Didden, R. (2013). A video-based package to teach a child with autism spectrum disorder to write her name. *Journal of Developmental and Physical Disabilities*, 25(5), 493-503. <https://doi.org/10.1007/s10882-012-9325-x>
71. Nikopoulos, C. K., Canavan, C., & Nikopoulou-Smyrni, P. (2009). Generalized effects of video modeling on establishing instructional stimulus control in children with autism results of a preliminary study. *Journal of Positive Behavior Interventions*, 11(4), 198-207. <https://doi.org/10.1177/1098300708325263>
72. Nikopoulos, C. K., & Keenan, M. (2003). Promoting social initiation in children with autism using video modeling. *Behavioral Interventions*, 18(2), 87-108. <https://doi.org/10.1002/bin.129>
73. Nikopoulos, C. K., & Keenan, M. (2004). Effects of video modeling on social initiations by children with autism. *Journal of Applied Behavior Analysis*, 37(1), 93-96. <https://doi.org/10.1901/jaba.2004.37-93>
74. Nikopoulos, C. K., & Keenan, M. (2007). Using video modeling to teach complex social sequences to children with autism. *Journal of Autism and Developmental Disorders*, 37(4), 678-693. <https://doi.org/10.1007/s10803-006-0195-x>
75. O'Handley, R. D., & Allen, K. D. (2017). An evaluation of the production effects of video self-modeling. *Research in Developmental Disabilities*, 71, 35-41. <https://doi.org/10.1016/j.ridd.2017.09.012>
76. Ohtake, Y., Takahashi, A., & Watanabe, K. (2015). Using an animated cartoon hero in video instruction to improve bathroom-related skills of a student with autism spectrum disorder. *Education and Training in Autism and Developmental Disabilities*, 50(3), 343-355.
77. Plavnick, J. B., & Ferreri, S. J. (2011). Establishing verbal repertoires in children with autism using function-based video modeling. *Journal of Applied Behavior Analysis*, 44(4), 747-766. <https://doi.org/10.1901/jaba.2011.44-747>
78. Plavnick, J. B., & Ferreri, S. J. (2012). Collateral effects of mand training for children with autism. *Research in Autism Spectrum Disorders*, 6(4), 1366-1376. <https://doi.org/10.1016/j.rasd.2012.05.008>
79. Plavnick, J. B., Kaid, T., & MacFarland, M. C. (2015). Effects of a school-based social skills training program for adolescents with autism spectrum disorder and intellectual disability. *Journal of Autism and Developmental Disorders*, 45(9), 2674-90. <https://doi.org/10.1007/s10803-015-2434-5>
80. Plavnick, J. B., MacFarland, M. C., & Ferreri, S. J. (2015). Variability in the effectiveness of a video modeling intervention package for children with autism. *Journal of Positive Behavior Interventions*, 17(2), 105-115. <https://doi.org/10.1177/1098300714548798>
81. Plavnick, J. B., Sam, A. M., Hume, K., & Odom, S. L. (2013). Effects of video-based group instruction for adolescents with autism spectrum disorder. *Exceptional Children*, 80(1), 67-83.
82. Rayner, C. (2011). Teaching students with autism to tie a shoelace knot using video prompting and backward chaining. *Developmental Neurorehabilitation*, 14(6), 339-347. <https://doi.org/10.3109/17518423.2011.606508>
83. Reeve, S. A., Reeve, K. F., Townsend, D. B., & Poulson, C. L. (2007). Establishing a generalized repertoire of helping behavior in children with autism. *Journal of Applied Behavior Analysis*, 40(1), 123-136. <https://doi.org/10.1901/jaba.2007.11-05>
84. Sani-Bozkurt, S., & Ozen, A. (2015). Effectiveness and efficiency of peer and adult models used in video modeling in teaching pretend play skills to children with autism spectrum disorder. *Education and Training in Autism and Developmental Disabilities*, 50(1), 71-83.
85. Schreibman, L., Whalen, C., & Stahmer, A. C. (2000). The use of video priming to reduce disruptive transition behavior in children with autism. *Journal of Positive Behavior Interventions*, 2(1), 43901. <https://doi.org/10.1177/109830070000200102>

86. Sherer, M., Pierce, K. L., Paredes, S., Kisacky, K. L., Ingersoll, B., & Schreibman, L. (2001). Enhancing conversation skills in children with autism via video technology: Which is better, "self" or "other" as a model? *Behavior Modification*, *25*(1), 140-158. <https://doi.org/10.1177/0145445501251008>
87. Shrestha, A., Anderson, A., & Moore, D. W. (2013). Using point-of-view video modeling and forward chaining to teach a functional self-help skill to a child with autism. *Journal of Behavioral Education*, *22*(2), 157-167. <https://doi.org/10.1007/s10864-012-9165-x>
88. Smith, M., Ayres, K., Mechling, L., & Smith, K. (2013). Comparison of the effects of video modeling with narration vs. video modeling on the functional skill acquisition of adolescents with autism. *Education and Training in Autism and Developmental Disabilities*, *48*(2), 164-178.
89. Smith, J., Hand, L., & Dowrick, P. W. (2014). Video feedforward for rapid learning of a picture-based communication system. *Journal of Autism and Developmental Disorders*, *44*(4), 926-36. <https://doi.org/10.1007/s10803-013-1946-0>
90. Smith, K. A., Shepley, S. B., Alexander, J. L., Davis, A., & Ayres, K. M. (2015). Self-instruction using mobile technology to learn functional skills. *Research in Autism Spectrum Disorders*, *11*, 93-100. <https://doi.org/10.1016/j.rasd.2014.12.001>
91. Spriggs, A. D., Knight, V., & Sherrow, L. (2015). Talking picture schedules: Embedding video models into visual activity schedules to increase independence for students with ASD. *Journal of Autism and Developmental Disorders*, *45*(12), 3846-61. <https://doi.org/10.1007/s10803-014-2315-3>
92. Taylor, B. A., Levin, L., & Jasper, S. (1999). Increasing play-related statements in children with autism toward their siblings: Effects of video modeling. *Journal of Developmental and Physical Disabilities*, *11*(3), 253-264. <https://doi.org/10.1023/A:1021800716392>
93. Wang, H. T. (2017). Utilizing primary tier intervention to enhance reciprocal turn-taking of children with autism in Taiwan. *Education and Training in Autism Developmental Disabilities*, *52*(1), 64-76.
94. Wert, B. Y., & Neisworth, J. T. (2003). Effects of video self-modeling on spontaneous requesting in children with autism. *Journal of Positive Behavior Interventions*, *5*(1), 30-34. <https://doi.org/10.1177/10983007030050010501>
95. Yakubova, G., Hughes, E. M., & Hornberger, E. (2015). Video-based intervention in teaching fraction problem-solving to students with autism spectrum disorder. *Journal of autism and developmental disorders*, *45*(9), 2865-75. <https://doi.org/10.1007/s10803-015-2449-y>
96. Yakubova, G., Hughes, E. M., & Shinaberry, M. (2016). Learning with technology: Video modeling with concrete-representational-abstract sequencing for students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *46*(7), 2349-62. <https://doi.org/10.1007/s10803-016-2768-7>
97. Yanardag, M., Akmanoglu, N., & Yilmaz, I. (2013). The effectiveness of video prompting on teaching aquatic play skills for children with autism. *Disability and Rehabilitation*, *35*(1), 47-56. <https://doi.org/10.3109/09638288.2012.687030>

Name of EBP	Visual Supports (VS)
Definition of EBP	Visual supports (VS) are concrete cues that provide information about an activity, routine, or expectation and/or support skill demonstration. Visual supports are often combined with other practices such as prompting and reinforcement, and they are also embedded in many more complex or packaged interventions. Some examples of common visual supports are visual schedules, activity schedules, work systems, graphic organizers, visual cues, and scripts.

Outcome Areas		Age Ranges					
		0-2 Toddlers	3-5 Preschoolers	6-11 Elementary School	12-14 Middle School	15-18 High School	19-22 Young Adults
	Communication		✓	✓	✓		
	Social		✓	✓	✓	✓	✓
	Joint attention		✓	✓			
	Play		✓	✓	✓		✓
	Cognitive		✓	✓			
	School readiness		✓	✓	✓		✓
	Academic/ Pre-academic		✓	✓	✓	✓	✓
	Adaptive/ self-help		✓	✓	✓	✓	✓
	Challenging/ Interfering behavior		✓	✓	✓		
	Vocational			✓	✓	✓	✓
	Motor	✓		✓			
	Mental health						
	Self-determination						

References

1. Angell, M. E., Nicholson, J. K., Watts, E. H., & Blum, C. (2011). Using a multicomponent adapted power card strategy to decrease latency during interactivity transitions for three children with developmental disabilities. *Focus on Autism and Other Developmental Disabilities, 26*(4), 206-217. <https://doi.org/10.1177/1088357611421169>
2. Bennett, K., Reichow, B., & Wolery, M. (2011). Effects of structured teaching on the behavior of young children with disabilities. *Focus on Autism and Other Developmental Disabilities, 26*(3), 143-152. <https://doi.org/10.1177/1088357611405040>
3. Bethune, K. S., & Wood, C. L. (2013). Effects of wh-question graphic organizers on reading comprehension skills of students with autism spectrum disorders. *Education and Training in Autism and Developmental Disabilities, 48*(2), 236-244. <https://doi.org/>
4. Betz, A., Higbee, T. S., & Reagon, K. A. (2008). Using joint activity schedules to promote peer engagement in preschoolers with autism. *Journal of Applied Behavior Analysis, 41*(2), 237-241. <https://doi.org/10.1901/jaba.2008.41-237>
5. Bock, M. A. (1999). Sorting laundry: Categorization strategy application to an authentic learning activity by children with autism. *Focus on Autism and Other Developmental Disabilities, 14*(4), 220-230. <https://doi.org/10.1177/108835769901400404>
6. Brown, J. L., Krantz, P. J., McClannahan, L. E., & Poulson, C. L. (2008). Using script fading to promote natural environment stimulus control of verbal interactions among youths with autism. *Research in Autism Spectrum Disorders, 2*(3), 480-497. <https://doi.org/10.1016/j.rasd.2007.08.006>

7. Bryan, L. C., & Gast, D. L. (2000). Teaching on-task and on-schedule behaviors to high-functioning children with autism via picture activity schedules. *Journal of Autism and Developmental Disorders*, 30(6), 553-567. <https://doi.org/10.1023/A:1005687310346>
8. Cale, S. I., Carr, E. G., Blakeley-Smith, A., & Owen-DeSchryver, J. S. (2009). Context-based assessment and intervention for problem behavior in children with autism spectrum disorder. *Behavior Modification*, 33(6), 707-742. <https://doi.org/10.1177/0145445509340775>
9. Carlile, K. A., Reeve, S. A., Reeve, K. F., & DeBar, R. M. (2013). Using activity schedules on the iPod touch to teach leisure skills to children with autism. *Education & Treatment of Children*, 36(2), 33-57. <https://doi.org/10.1353/etc.2013.0015>
10. Carlson, B., McLaughlin, T., Derby, K. M., & Blecher, J. (2009). Teaching preschool children with autism and developmental delays to write. *Electronic Journal of Research in Educational Psychology*, 7(1), 225-238. <https://doi.org/10.25115/ejrep.v7i17.1313>
11. Carp, C. L., Peterson, S. P., Arkel, A. J., Petursdottir, A. I., & Ingvarsson, E. T. (2012). A further evaluation of picture prompts during auditory-visual conditional discrimination training. *Journal of Applied Behavior Analysis*, 45(4), 737-51. <https://doi.org/10.1901/jaba.2012.45-737>
12. Charlop-Christy, M. H., & Kelso, S. E. (2003). Teaching children with autism conversational speech using a cue card/written script program. *Education and Treatment of Children*, 26(2), 108-127. <https://doi.org/>
13. Cihak, D. F. (2011). Comparing pictorial and video modeling activity schedules during transitions for students with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 5(1), 433-441. <https://doi.org/10.1016/j.rasd.2010.06.006>
14. Cihak, D. F., & Foust, J. L. (2008). Comparing number lines and touch points to teach addition facts to students with autism. *Focus on Autism and Other Developmental Disabilities*, 23(3), 131-137. <https://doi.org/10.1177/1088357608318950>
15. Cihak, D. F., Wright, R., & Ayres, K. M. (2010). Use of self-modeling static-picture prompts via a handheld computer to facilitate self-monitoring in the general education classroom. *Education and Training in Developmental Disabilities*, 45(1), 136-149. <https://doi.org/>
16. Dotto-Fojut, K. M., Reeve, K. F., Townsend, D. B., & Progar, P. R. (2011). Teaching adolescents with autism to describe a problem and request assistance during simulated vocational tasks. *Research in Autism Spectrum Disorders*, 5(2), 826-833. <https://doi.org/10.1016/j.rasd.2010.09.012>
17. Duttlinger, C., Ayres, K. M., Bevil-Davis, A., & Douglas, K. H. (2013). The effects of a picture activity schedule for students with intellectual disability to complete a sequence of tasks following verbal directions. *Focus on Autism and Other Developmental Disabilities*, 28(1), 32-43. <https://doi.org/10.1177/1088357612460572>
18. Elicin, O., & Tunali, V. (2016). Effectiveness of tablet computer use in achievement of schedule-following skills by children with autism using graduated guidance. *Education and Science*, 41(183), 29-46. <https://doi.org/10.15390/EB.2016.5358>
19. Fleury, V. P., Miramontez, S. H., Hudson, R. F., & Schwartz, I. S. (2014). Promoting active participation in book reading for pre-schoolers with Autism Spectrum Disorders: A preliminary study. *Child Language Teaching and Therapy*, 30(3), 273-288. <https://doi.org/10.1177/0265659013514069>
20. Ganz, J. B., Boles, M. B., Goodwyn, F. D., & Flores, M. M. (2014). Efficacy of handheld electronic visual supports to enhance vocabulary in children with ASD. *Focus on Autism and Other Developmental Disabilities*, 29(1), 43902. <https://doi.org/10.1177/1088357613504991>
21. Ganz, J. B., Kaylor, M., Bourgeois, B., & Hadden, K. (2008). The impact of social scripts and visual cues on verbal communication in three children with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities*, 23(2), 79-94. <https://doi.org/10.1177/1088357607311447>
22. Giles, A., & Markham, V. (2017). Comparing book- and tablet-based picture activity schedules: Acquisition and preference. *Behavior Modification*, 41(5), 647-664. <https://doi.org/10.1177/0145445517700817>
23. Grossman, M., Peskin, J., & San Juan, V. (2013). Thinking about a reader's mind: Fostering communicative clarity in the compositions of youth with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 43(10), 2376-92. <https://doi.org/10.1007/s10803-013-1786-y>
24. Hong, E. R., Neely, L., Rispoli, M. J., Trepinski, T. M., Gregori, E., & Davis, T. (2015). A comparison of general and explicit delay cues to reinforcement for tangible-maintained challenging behaviour. *Developmental Neurorehabilitation*, 18(6), 395-401. <https://doi.org/10.3109/17518423.2013.874378>
25. Hudson, R. F., Sanders, E. A., Greenway, R., Xie, S., Smith, M., Gasamis, C., Martini, J., Schwartz, I., & Hackett, J. (2017). Effects of emergent literacy interventions for preschoolers with autism spectrum disorder. *Exceptional Children*, 84(1), 55-75. <https://doi.org/10.1177/0014402917705855>
26. Hughes, C., Golas, M., Cosgriff, J., Brigham, N., Edwards, C., & Cashen, K. (2011). Effects of a social skills intervention among high school students with intellectual disabilities and autism and their general education peers. *Research and Practice for Persons with Severe Disabilities*, 36(1-2), 46-61. <https://doi.org/10.2511/rpsd.36.1-2.46>
27. Hume, K., & Odom, S. (2007). Effects of an individual work system on the independent functioning of students with autism. *Journal of Autism and Developmental Disorders*, 37(6), 1166-1180. <https://doi.org/10.1007/s10803-006-0260-5>
28. Hume, K., Plavnick, J., & Odom, S. L. (2012). Promoting task accuracy and independence in students with autism across educational setting through the use of individual work systems. *Journal of Autism and Developmental Disorders*, 42(10), 2084-99. <https://doi.org/10.1007/s10803-012-1457-4>
29. Kaplan-Reimer, H., Sidener, T. M., Reeve, K. F., & Sidener, D. W. (2011). Using stimulus control procedures to teach indoor rock climbing to children with autism. *Behavioral Interventions*, 26(1), 43852. <https://doi.org/10.1002/bin.315>
30. Knight, V. F., Smith, B. R., Spooner, F., & Browder, D. (2012). Using explicit instruction to teach science descriptors to students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 42(3), 378-89. <https://doi.org/10.1007/s10803-011-1258-1>
31. Krantz, P. J., & McClannahan, L. E. (1993). Teaching children with autism to initiate to peers: Effects of a script-fading procedure. *Journal of Applied Behavior Analysis*, 26(1), 121-132. <https://doi.org/10.1901/jaba.1993.26-121>
32. Krantz, P. J., & McClannahan, L. E. (1998). Social interaction skills for children with autism: A script-fading procedure for beginning readers. *Journal of Applied Behavior Analysis*, 31(2), 191-202. <https://doi.org/10.1901/jaba.1998.31-191>
33. Krantz, P. J., MacDuff, M. T., & McClannahan, L. E. (1993). Programming participation in family activities for children with autism: Parents' use of photographic activity schedules. *Journal of Applied Behavior Analysis*, 26(1), 137-138. <https://doi.org/10.1901/jaba.1993.26-137>

34. Kurkcuoglu, B. U., Bozkurt, F., & Cuhadar, S. (2015). Effectiveness of instruction performed through computer- assisted activity schedules on on-schedule and role-play skills of children with autism spectrum disorder. *Educational Sciences: Theory & Practice*, 15(3), 671-689. <https://doi.org/10.12738/estp.2015.3.2432>
35. Ledbetter-Cho, K., Lang, R., Davenport, K., Moore, M., Lee, A., Howell, A., Drew, C., Dawson, D., Charlop, M. H., Falcomata, T., & O'Reilly, M. (2015). Effects of script training on the peer-to-peer communication of children with autism spectrum disorder. *Journal of Applied Behavior Analysis*, 48(4), 785-799. <https://doi.org/10.1002/jaba.240>
36. Ledbetter-Cho, K., Lang, R., Moore, M., Davenport, K., Murphy, C., Lee, A., O'Reilly, M., & Watkins, L. (2017). Effects of video-enhanced activity schedules on academic skills and collateral behaviors in children with autism. *International Journal of Developmental Disabilities*, 63(4), 228-237. <https://doi.org/10.1080/20473869.2017.1290022>
37. MacDuff, G. S., Krantz, P. J., & McClannahan, L. E. (1993). Teaching children with autism to use photographic activity schedules: Maintenance and generalization of complex response chains. *Journal of Applied Behavior Analysis*, 26(1), 89-97. <https://doi.org/10.1901/jaba.1993.26-89>
38. Matson, J. L., Sevin, J. A., Box, M. L., Francis, K. L., & Sevin, B. M. (1993). An evaluation of two methods for increasing self-initiated verbalizations in autistic children. *Journal of Applied Behavior Analysis*, 26(3), 389-398. <https://doi.org/10.1901/jaba.1993.26-389>
39. Mavropoulou, S., Papadopoulou, E., & Kakana, D. (2011). Effects of task organization on the independent play of students with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 41(7), 913-925. <https://doi.org/10.1007/s10803-010-1116-6>
40. McKissick, B. R., Spooner, F., Wood, C. L., & Diegelmann, K. M. (2013). Effects of computer-assisted explicit instruction on map-reading skills for students with autism. *Research in Autism Spectrum Disorders*, 7(12), 1653-1662. <https://doi.org/10.1016/j.rasd.2013.09.013>
41. Miller, S. A., Rodriguez, N. M., & Rourke, A. J. (2015). Do mirrors facilitate acquisition of motor imitation in children diagnosed with autism? *Journal of Applied Behavior Analysis*, 48(1), 194-8. <https://doi.org/10.1002/jaba.187>
42. Morrison, R. S., Sainato, D. M., Benchaaban, D., & Endo, S. (2002). Increasing play skills of children with autism using activity schedules and correspondence training. *Journal of Early Intervention*, 25(1), 58-72. <https://doi.org/10.1177/105381510202500106>
43. Murdock, L. C., & Hobbs, J. Q. (2011). Picture me playing: Increasing pretend play dialogue of children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 41(7), 870-878. <https://doi.org/10.1007/s10803-010-1108-6>
44. Murdock, L. C., & Hobbs, J. Q. (2011). Tell me what you did today: A visual cueing strategy for children with ASD. *Focus on Autism and Other Developmental Disabilities*, 26(3), 162-172. <https://doi.org/10.1177/1088357611405191>
45. Murdock, L. C., Ganz, J., & Crittendon, J. (2013). Use of an iPad play story to increase play dialogue of preschoolers with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders*, 43(9), 2174-89. <https://doi.org/10.1007/s10803-013-1770-6>
46. O'Reilly, M., Sigafos, J., Lancioni, G., Edrisinha, C., & Andrews, A. (2005). An examination of the effects of a classroom activity schedule on levels of self-injury and engagement for a child with severe autism. *Journal of Autism and Developmental Disorders*, 35(3), 305-311. <https://doi.org/10.1007/s10803-005-3294-1>
47. O'Connor, A. S., Prieto, J., Hoffmann, B., DeQuinzio, J. A., & Taylor, B. A. (2011). A stimulus control procedure to decrease motor and vocal stereotypy. *Behavioral Interventions*, 26(3), 231-242. <https://doi.org/10.1002/bin.335>
48. O'Hara, M., & Hall, L. J. (2014). Increasing engagement of students with autism at recess through structured work systems. *Education and Training in Autism and Developmental Disabilities*, 49(4), 568-575. <https://doi.org/>
49. Peterson, L., McLaughlin, T. F., Weber, K. P., & Anderson, H. (2008). The effects of model, lead, and test technique with visual prompts paired with a fading procedure to teach "where" to a 13-year-old echolalic boy with autism. *Journal of Developmental and Physical Disabilities*, 20(1), 31-39. <https://doi.org/10.1007/s10882-007-9077-1>
50. Purrazzella, K., & Mechling, L. C. (2013). Evaluation of manual spelling, observational and incidental learning using computer-based instruction with a tablet PC, large screen projection, and a forward chaining procedure. *Education and Training in Autism and Developmental Disabilities*, 48(2), 218-235. <https://doi.org/>
51. Reeves, L. M., Umbreit, J., Ferro, J. B., & Liaupsin, C. J. (2013). Function-based intervention to support the inclusion of students with autism. *Education and Training in Autism and Developmental Disabilities*, 48(3), 379-391. <https://doi.org/>
52. Richardson, A. R., Lerman, D. C., Nissen, M. A., Luck, K. M., Neal, A. E., Bao, S. M., & Tsami, L. (2017). Can pictures promote the acquisition of sight-word reading? An evaluation of two potential instructional strategies. *Journal of Applied Behavior Analysis*, 50(1), 67-86. <https://doi.org/10.1002/jaba.354>
53. Rousseau, M. K., Krantz, P. J., Poulson, C. L., Kitson, M. E., & McClannahan, L. E. (1994). Sentence combining as a technique for increasing adjective use in writing by students with autism. *Research in Developmental Disabilities*, 15(1), 19-37. [https://doi.org/10.1016/0891-4222\(94\)90036-1](https://doi.org/10.1016/0891-4222(94)90036-1)
54. Schenning, H., Knight, V., & Spooner, F. (2013). Effects of structured inquiry and graphic organizers on social studies comprehension by students with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 7(4), 526-540. <https://doi.org/10.1016/j.rasd.2012.12.007>
55. Solis, M., El Zein, F., Vaughn, S., McCulley, L. V., & Falcomata, T. S. (2016). Reading comprehension interventions for students with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities*, 31(4), 284-299. <https://doi.org/10.1177/1088357615583464>
56. Spriggs, A. D., Knight, V., & Sherrow, L. (2015). Talking picture schedules: Embedding video models into visual activity schedules to increase independence for students with ASD. *Journal of Autism and Developmental Disorders*, 45(12), 3846-61. <https://doi.org/10.1007/s10803-014-2315-3>
57. Strain, P. S., Wilson, K., & Dunlap, G. (2011). Prevent-teach-reinforce: Addressing problem behaviors of students with autism in general education classrooms. *Behavioral Disorders-Journal of the Council for Children with Behavioral Disorders*, 36(3), 160-171. <https://doi.org/10.1177/019874291003600302>
58. Stringfield, S. G., Luscre, D., & Gast, D. L. (2011). Effects of a story map on accelerated reader postreading test scores in students with high-functioning autism. *Focus on Autism and Other Developmental Disabilities*, 26(4), 218-229. <https://doi.org/10.1177/1088357611423543>
59. Thiemann, K. S., & Goldstein, H. (2004). Effects of peer training and written text cueing on social communication of school-age children with pervasive developmental disorder. *Journal of Speech, Language and Hearing Research*, 47(1), 126-144. [https://doi.org/10.1044/1092-4388\(2004/012\)](https://doi.org/10.1044/1092-4388(2004/012))

60. Vedora, J., Barry, T., & Ward-Horner, J. C. (2017). An evaluation of differential observing responses during receptive label training. *Behavior Analysis in Practice, 10*(3), 290-295. <https://doi.org/10.1007/s40617-017-0188-6>
61. West, E. A. (2008). Effects of verbal cues versus pictorial cues on the transfer of stimulus control for children with autism. *Focus on Autism and Other Developmental Disabilities, 23*(4), 229-241. <https://doi.org/10.1177/1088357608324715>
62. Whalon, K., Martinez, J. R., Shannon, D., Butcher, C., & Hanline, M. F. (2015). The impact of reading to engage children with autism in language and learning (RECALL). *Topics in Early Childhood Special Education, 35*(2), 102-115. <https://doi.org/10.1177/0271121414565515>
63. Wichnick-Gillis, A. M., Vener, S. M., & Poulson, C. L. (2016). The effect of a script-fading procedure on social interactions among young children with autism. *Research in Autism Spectrum Disorders, 26*, 1-9. <https://doi.org/10.1016/j.rasd.2016.03.004>
64. Williamson, P., Carnahan, C. R., Birri, N., & Swoboda, C. (2015). Improving comprehension of narrative using character event maps for high school students with autism spectrum disorder. *The Journal of Special Education, 49*(1), 28-38. <https://doi.org/10.1177/0022466914521301>
65. Zakas, T. L., Browder, D. M., Ahlgrim-Dezell, L., & Heafner, T. (2013). Teaching social studies content to students with autism using a graphic organizer intervention. *Research in Autism Spectrum Disorders, 7*(9), 1075-1086. <https://doi.org/10.1016/j.rasd.2013.06.001>



National Clearinghouse on Autism Evidence
and Practice Review Team



AHCCCS ASD ADVISORY COMMITTEE MEETING NOTES
Wednesday, January 6, 2021

The meeting convened at 3:00 pm

- Approximately 50 attendees signed into the virtual meetings, composed of providers, health and behavioral health professionals, state agency personnel, family members advocates, and health plan participants.

AHCCCS Updates

- Sara Salek, AHCCCS Chief Medical Officer provided an update on continued flexibilities offered to support member and their families during the COVID-19 pandemic. Telehealth remains available to members and access to this modality remains at high utilization.
- After presenting general updates, Sara provided key resources to stay up to date with COVID-19 resources, updates, and vaccine information.
 - <https://azahcccs.gov/AHCCCS/AboutUs/covid19FAQ.html>
 - AHCCCS COVID-19 Vaccine Video
<https://ahcccsnews.azahcccs.gov/covid-19-vaccine-video-provides-current-info/>
 - Clinical Dashboard
<https://azahcccs.gov/Resources/Reports/dashboards.html>

Division of Developmental Disabilities Health Plan Changes Update

- Mary Decarlo, BCBA, DDD, gave an update regarding the rollout of the health plan changes at DDD.
- Integrated Care Plans-Effective October 2019, DDD entered contracted with two health plans to provide physical and behavioral health services (and Children’s Rehabilitation Services) to DDD and ALTCS members residing in every Arizona county. The health plan allows the member a choice of pcp. The two plans are UnitedHealth Community Plan and Mercy Care Plan.
 - AHCCCS AMPM 320-S-policy establishes a requirement for behavior analysis and delivery
 - Covers AHCCCS members in need of behavioral treatment regardless of age and diagnosis
- Behavioral analysis utilization data is collected and was provided to the committee.
- FAQs since the changes have been captured and were shared with committee members
 - Q. Is it required that a member enroll with an outpatient behavioral health provider to receive ABA services, even if that outpatient provider clinic is not the entity that is providing those services? A. There is no requirement from either

health plan, but enrollment is recommended for coordination of care and identifying/assessing additional services and supports.

Q. What are the prior authorization requirements for behavior analysis services through UHC and MCP? A. PA is NOT required for initial assessment (codes 97151 and 97152) PA is required for direct treatment and is completed by the ABA provider or the outpatient behavioral health home.

Q. What is the Support Coordinators role in determining medical necessity? A. The SC can make the recommendation to the Child and Family Team (CFT) or Adult Recovery Team (ART) for BA services if there is a need. The District CCS provides technical assistance to Support Coordinators on navigating BA services for members. The SC participates in team meetings and can refer families to their health plan member services to find a contracted provider.

- DDD hosts quarterly meetings with the contracted health plans and ABA providers to problem solve issues and concerns regarding BA service delivery.
- A few committee members mentioned there have been some inconsistencies/issues with authorization related to ages and diagnosis. Mary noted that she may be contacted at mdecarlo@azdes.gov to assist with any concerns.
- Another committee member noted that some members are interested in hearing more about the transition of services and supports to the health plans beyond behavior analysis and asked that this be a topic for a future meeting.

Evidence-Based Practice Update Terry Matteo, Ph.D

- Terry provided both written materials and an overview of the Frank Porter Graham Center, at the University of North Carolina, updates on the National Clearinghouse on Autism Evidence and Practice Review Team.
 - <https://ncaep.fpg.unc.edu/sites/ncaep.fpg.unc.edu/files/imce/documents/EBP%20Report%202020.pdf>
 - <https://ncaep.fpg.unc.edu/>
 - <https://fpg.unc.edu/news/fpg-researchers-find-five-new-evidence-based-practices-children-and-youth-autism>

Terry will send additional materials to be distributed to the committee, inclusive of the rationale for the update, the definitions, and the outcomes document.

ASD Advisory Committee Reflections

The ASD Advisory Committee has been meeting for approximately early 2015 and much has been accomplished since the 2016 report, with accompanying recommendations. Sara and Barb asked committee members to reflect on some of the accomplishments outlined in the report, outline through five major themes.

- Early Identification and Diagnosis
- Evidence-Based Treatment
- Reducing System Complexity
- Increasing Network Capacity

The overarching accomplishment expressed was the building of a trusted network of professionals, families, and advocates committed to increasing the availability and quality of services and supports to people with autism and their families. Some of the successes shared by members during the meeting or through contact with the facilitator afterward are noted here.

- Educated each other about what is happening in the community, with both opportunities to problem-solve and strong practices to replicate.
- All Committee members have somebody they can go to with a concern or question because of the relationships built over time. This helps members and families get the services they need
- Shared learning to present literature and research
- Navigation is easier. Even if families or others don't know whom to contact, there is a large group of us who can assist so that people don't need to make multiple calls
- BCBA's are successfully registered as an independent AHCCCS provider type
- Highlighting Be Safe and Silver Alert safety and prevention resources
- Development and curating of resources of the AHCCCS ASD website <https://www.azahcccs.gov/shared/asd.html>
- Development and implementation of the AHCCCS AMPM 320 Behavioral Intervention Policy
- Ongoing communication to assist with access to services for children over the age of five and into adulthood with medically necessary behavior support needs
- Significant progress working through the challenges of third-party liability/coordination of benefits

The Committee members value membership in the ASD Advisory Committee and hope to continue as a springboard for assisting AHCCCS with addressing the changing landscape in the field and state to help AHCCCS members receive the services they need. Comorbid conditions and specialty care.

Next Steps

AHCCCS will send out the updated draft plan that broadly outlines accomplishments in addition to those shared by the Committee and proposed Committee topics to address for the coming year.

This will be provided to the ASD Committee members for review by February 10th with a one month review period. Feedback should be provided to Rhohno.Geppert@azahcccs.gov. Please be sure to reference the section to which the feedback applies (A1, B2, etc.)

The Committee's feedback, in concert with AHCCCS, will compose the work and priorities of the ASD Advisory Committee in the future and will be discussed during the meeting on April 7, 2021.

2021 Meeting Schedule: April 7th, July 7th, October 6th