

Evidence-Based Practices for Young Children with Autism Spectrum Disorders

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In 2013, the National Professional Development Center on Autism Spectrum Disorders (NPDC) conducted a review of the autism intervention literature published between 1990 and 2011. The results presented here represent practices with empirical evidence for young children with ASD under age 5.

Group Design Quality Indicators

Instructions: Read each item and check the appropriate box. If you check "NO" at any time, the article will not be included as evidence for a practice.

Item	YES	NO
Does the study have experimental and control/comparative groups?		
Were appropriate procedures used to increase the likelihood that relevant characteristics of participants in the sample were comparable across conditions?		
Was their evidence for adequate reliability for the key outcome measures? And/or when relevant, was inter-observer reliability assessed and reported to be at an acceptable level?		
Were outcomes for capturing the intervention's effect measured at appropriate times (at least pre- and post-test)?		
Was the intervention described and specified clearly enough that critical aspects could be understood?		
Was the control/comparison condition(s) described?		
Were data analysis techniques appropriately linked to key research questions and hypotheses?		
Was attrition NOT a significant threat to internal validity?		
Does the research report statistically significant effects of the practice for individuals with ASD for at least one outcome variable?		
Were the measures of effect attributed to the intervention? (no obvious unaccounted confounding factors)		

Single Case Design Quality Indicators

Instructions: Read each item and check the appropriate box. If you check "NO" at any time, the article will not be included as evidence for a practice.

Item	YES	NO
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 non-occurrence 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 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 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?		
Are the results displayed in graphical 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? *Alternating treatment designs require at least 4 repetitions of the alternating sequence.		

Evidence-Based Practices for Young Children with ASD: Number/Type of Articles Included

Focused Interventions	EI		ECSE	
	Group	SCD	Group	SCD
Antecedent-based interventions (ABI): Arrangement of events or circumstances that precede the occurrence of an interfering behavior and designed to lead to the reduction of the behavior.	-	1	-	35
Behavioral momentum intervention (BMI): Organization of behavior expectations in a sequence in which low probability behaviors are embedded in a series of high probability behaviors to increase the occurrence of the low probability behaviors.	-	-	-	5
Differential reinforcement (DRA/I/O): Differential reinforcement of: alternative, incompatible, or other behavior. Provision of desirable consequences for behaviors or their absence that reduce the occurrence of an undesirable behavior. Reinforcement provided: a) when learner is engaging in a specific desired behavior other than the inappropriate behavior (DRA), b) when learner is engaging in a behavior that is physically impossible to do while exhibiting the inappropriate behavior (DRI) or c) when learner is not engaging in the interfering behavior (DRO).	-	-	-	9
Discrete trial teaching (DTT): Instructional process usually involving one teacher/service provider/caregiver and one child and designed to teach appropriate behavior or skills. Instruction usually involves massed trials; each trial consists of the teacher's instruction/presentation, the child's response, a carefully planned consequence, and a pause prior to presenting the next instruction.	-	-	-	13
Exercise (ECE): Increase in physical exertion as a means of reducing problem behaviors or increasing appropriate behavior.	-	-	1	1
Extinction (EXT): Withdrawal/removal of reinforcers of interfering behavior to reduce the occurrence of that behavior. Although sometime used as a single intervention practice, extinction often occurs in combination with functional behavioral assessment, functional communication training, and differential reinforcement.	-	-	-	1
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/problem behavior, identifying antecedent or consequent events that control the behavior, developing a hypothesis of the function of the behavior, and/or testing the hypothesis.	1	1	1	1
Functional communication training (FCT): Replacement of interfering behavior that has a communicative function with more appropriate communication that accomplishes the same function. FCT usually includes FBA, DRA, and/or Extinction.	-	-	-	7
Modeling (MD): Demonstration of a desired target behavior that results in imitation of the behavior by the learner and that leads to the acquisition of the imitated behavior. This EPB is often combined with other strategies such as prompting and reinforcement.	1	-	-	5
Naturalistic intervention (NI): Intervention strategies that occur within the typical setting/activities/routines in which the learner participates. Teachers/service providers/caregivers establish the learner's interest in a learning event through arrangement of the setting/activity/routine, provide necessary support for the learner to engage in the targeted behavior, elaborate on the behavior when it occurs, and/or arrange natural consequences for the targeted behavior or skills.	1	1	-	8
Parent-implemented intervention (PII): Parents provide individualized 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.	5	9	5	14
Peer-mediated instruction and intervention (PMII): Typically developing peers interact with and/or help children with ASD acquire new behavior, communication, and/or social skills by increasing social and learning opportunities within natural environments. Teachers/service providers systematically teach to peers strategies for engaging children with ASD in positive and extended social interactions.	-	-	-	8
Picture Exchange Communication System (PECS)©: Learners are initially taught to give a picture of a desired item to a communicative with partner in an exchange for the desired item. PECS consists of: (1) Teaching the physically assisted exchange, (2) Expanding spontaneity, (3) Simultaneous discrimination of pictures, (4) Building sentence structure, (5) Responding to, "What do you want?" and (6) Commenting in response to a question.	-	-	1	3

Focused Interventions	EI		ECSE	
	Group	SCD	Group	SCD
Pivotal Response Training (PRT): Pivotal learning variables (i.e., motivation, responding to multiple cues, self-management, and self-initiations) guide intervention practices that are implemented in settings that build on learner interests and initiative.	1	-	1	2
Prompting (PP): 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.	-	1	-	19
Reinforcement (R+): 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.	-	2	-	18
Response interruption/redirection (RIR): 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.	-	-	-	5
Scripting (SC): A verbal and/or written description about a specific skill or situation that serves as a model for the learner. Scripts are usually practiced repeatedly before the skill is used in the actual situation.	-	1	1	3
Self-management (SM): Instruction focusing on learners' discrimination between appropriate and inappropriate behaviors, accurately monitoring and recording their own behaviors, and rewarding themselves for behaving appropriately.	-	-	-	1
Social narratives (SN): Narratives that describe social situations in some detail by highlighting relevant cues and offering examples of appropriate responding. Social narratives are individualized according to learner needs and typically are quite short, perhaps including pictures or other visual aids.	-	-	-	4
Social skills training (SST): Group or individual instruction designed to teach learners with ASD ways to appropriately interact with peers, adults, and other individuals. Most social skill meetings include instruction on basic concepts, role-playing or practice, and feedback to help learners with ASD acquire and practice communication, play, or social skills to promote positive interactions with peers.	-	-	1	3
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.	-	-	-	1
Technology-aided instruction and intervention (TAII): Instruction or interventions in which technology is the central feature supporting the acquisition of a goal for the learner. Technology is defined as "any electronic item/ equipment/application/or virtual network" (CESA Technology Group, 2013).	-	-	3	1
Time delay (TD): In a setting or activity in which a learner should engage in a behavior or skill, a brief delay occurs between the opportunity to use the skill and any additional instructions or prompts. The purpose of the time delay is to allow the learner to respond without having to receive a prompt and thus focuses on fading the use of prompts during instructional activities.	-	-	-	7
Video modeling (VM): A visual model of the targeted behavior or skill (typically in the behavior, communication, play or social domains), provided via video recording and display equipment to assist learning in engaging in a desired behavior or skill.	-	2	1	11
Visual supports (VS): Any visual display that supports the learner engaging in a desired behavior or skills independent of prompts. Examples of visual supports include pictures, written words, objects within the environment, arrangement of the environment or visual boundaries, schedules, maps, labels, organization systems, and timelines.	-	-	-	9

Criteria for Qualification as an Evidence-Based Practice

- At least two high quality experimental group or quasi-experimental design articles
 - Conducted by at least two different researchers or research groups
- OR
- At least five high quality single case design articles
 - Conducted by at least three different researchers or research groups
 - Having a total of at least 20 participants across studies
- OR
- A combination of at least one high quality group experimental or quasi-experimental design article and at least three high quality single case design articles
 - Conducted by at least two different research groups

Evidence-Based Practice Review for Young Children with ASD: EBP x Outcome Matrix

EBP	Social		Communication		Behavior		JA		Play		Cognitive		School-Readiness		Academic		Motor		Adaptive	
	EI	ECSE	EI	ECSE	EI	ECSE	EI	ECSE	EI	ECSE	EI	ECSE	EI	ECSE	EI	ECSE	EI	ECSE	EI	ECSE
ABI																				
BMI																				
DRA/I/O																				
DTT																				
ECE																				
EXT																				
FBA																				
FCT																				
MD																				
NI																				
PII																				
PMII																				
PECS																				
PRT																				
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R+																				
RIR																				
SC																				
SM																				
SN																				
SST																				
TA																				
TAII																				
TD																				
VM																				
VS																				