Superheroes social skills training, Rethink Autism internet interventions, parent training, EBP classroom training, functional behavior assessment: An autism spectrum disorder, evidence based (EBP) training track for school psychologists.

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Principal Investigators: William R. Jenson, PhD and Elaine Clark, PhD

Grant Director: Julia Hood, PhD

University of Utah
Department of Educational Psychology
School Psychology Program
CORE COMPONENTS OF ABA: DISCRETE TRIAL TRAINING

Steps of a Discrete Trial –

- **Instruction**
  - Short and to the point – omit any unneeded words
  - Use same wording/phrase consistently

- **Response** – behavior cued by the instruction
  - Consistently defined among team members
  - No more than 3 seconds are allowed for response to be emitted

- **Consequence** – reinforcing stimulus
  - Give immediately after correct response
  - Optimal duration is 3-5 seconds
  - Always provide social reinforcement – tickles, high fives, etc
  - Child is more likely to accept other reinforcers after initial reinforcer
Core Components of ABA: Important Concepts

- **Task Analysis** - behaviors are broken down into smaller units and each unit is taught separately
  - Beginning units should be so simple that the child can be rewarded and can learn

- **Shaping** – rewarding approximations of behavior

- **Prompt** – any action that helps student perform a response so behavior can be reinforced/strengthened
  - Physical/manual, modeling, position prompting, and recency
  - Slowly fade prompt and shift rewards to unprompted behavior
  - Prompt Fading – graduated guidance, most-to-least, and least-to-most

- **Rewards** – positives and escape from negatives
  - Schedules: immediate and partial

- **Punishment** – aversives, time-out, and overcorrection
Teaching Developmentally Disabled Children: The ME Book
O. Ivar Lovaas (1981)

- Getting Ready to Learn
  - **Proper Sitting** - “Sit Down,” “Sit Up Straight,” and “Hands Quiet”
  - **Directing and Maintaining Attention** – “Look at Me”
    - Visual attention to face and to objects in environment
    - Best taught after proper sitting is achieved
  - **Eliminating Mildly Disruptive Behaviors**
    - Straight Extinction – ignore behavior
    - Time-Out – turn body away until child stops disruptive behavior
    - Corner Behavior – spread arms and legs against a corner
    - “No!”
Imitation of Simple Actions – “Do This. . .”
- Children learn majority of social, recreational, and language skills through imitation
- Imitation of gross motor actions, facial expressions, and gestures
  - Examples – raises arms, clapping hands, and shake head “no”
- Goal – establish imitative set/tendency

Following Verbal Instructions
- Builds receptive language skills
- Taught after imitation of simple actions
- Gross motor skills, actions, manipulation of objects, and affectionate behavior

Matching Visual Stimuli – “Put Same with Same”
- Types – matching concrete forms, abstract forms, and concrete-to-abstract forms
**Verbal Imitation – Sounds and Words**
- Teaching child how to talk is the most difficult skill to teach
  - Approximately \( \frac{1}{2} \) of therapy time is spent on language skills
- If child is >6 years old and uses C-V combinations, then will probably learn language quickly
- Phases –
  - Increasing vocalizations
  - Bringing vocalizations under temporal control
  - Imitation of sounds
  - Imitation of syllables and words
  - Imitation of volume, pitch, and speed of vocalizations

**Appropriate Play Skills**
- Use nonverbal imitation skills to learn play skills
  - Examples – playing with blocks, sports, drawing, dancing
- Independent Play – slow fading of therapist’s presence
Teaching Individuals with Developmental Delays: Basic Intervention Techniques
O. Ivar Lovaas (2002)

- Behavior – not autism – is studied and addressed
  - Autism is a hypothetical construct, not “proven” to exist

Tenets of Behavioral Theory
- Behaviors can be accounted for by the laws of learning
- Many separate behavioral deficits exist
- Persons with autism can learn in a specialized environment
- Problems are viewed as a mismatch rather than a disease

Core Behavioral Difficulties
- Tantrums/Self-Injury
  - Triggered out of frustration
- Self-Stimulation
  - May provide “food” for the nervous system
  - May use behaviors as a reward
- Motivational Problems
  - Goal – to increase effectiveness of intrinsic rewards
- Attentional Problems
  - Experiment – clapping, starting pistol, and candy bar
TEACHING INDIVIDUALS WITH DEVELOPMENTAL DELAYS

- Establishing Cooperation and Tantrum Reduction
  - “Sit,” “Hands Quiet,” and “Sit Nice”
  - If noncompliant, teach preferred tasks – complete a puzzle and drop a block

- Matching – class, category, and sorting

- Imitation – “Do This. . .”
  - Generalized Imitation – when child learns to imitate novel behaviors without being taught (one-trial learning)

- Receptive Language – “Drop Block” and “Car”

- Receptive Identification – objects and behaviors

- Verbal Imitation

- Expressive Labeling – objects and behaviors
**Teaching Individuals with Developmental Delays**

- **Types of Language Learners**
  - Auditory Learners – the aforementioned procedures are effective in teaching the child language
  - Visual Learners – characterized by expressive language deficits, require a visual system for communicating

- **Picture Exchange Communication System (PECS)**
  - **Phase 1 – Beginning Training**
    - Teach child to approach adult to communicate
    - Arrangement: enticer, child, helper
    - Do NOT prompt communication – wait for child to reach
  - **Phase 2 – Increasing Spontaneity**
    - Increase: rewards, distance to teacher, distance to picture, and adults
  - **Phase 3 – Discrimination Training**
    - Present two items with pictures (preferred and neutral) and give item selected
About Catherine Maurice –
- Mother of 2 children diagnosed with an ASD in the 1990s
- Compiled a parent manual for the treatment of ASDs

Applied Behavioral Analysis – has been proved, through extensive research, to be the most effective intervention for treatment of ASDs
- ABA is NOT a cure, but can result in typical school placements for “many” and “completely normal functioning for some”

Characteristics of ABA –
- Treatment begins at 2-3 years of age for at least 30 hrs/wk for a minimum of 2 years
- Improves – intellectual functioning, language, social skills, play, self-help, and problematic behavior
**Behavioral Intervention for Young Children with Autism**

- **Skills Assessment** – used to determine proficiency of skill set without assistance
  - Skills should be reliable, complete, and generalized

- **Behavioral Objective** – states the condition for the behavior, the expected behavior, and the criteria for attainment

- **Curriculum Guides**
  - Beginning and Intermediate – attending, imitation, receptive/expressive language, pre-academic, and self-help skills
  - Advanced – addition of abstract language, academic skills, social skills, and school readiness
Behavioral Intervention for Young Children with Autism

Types of Instruction

- Direct Teaching – tight control over instructional activities
  - Typical ABA teaching method – sit face-to-face with rapid presentation of trials
- Activity-Based Instruction – learning trials embedded in an activity
- Incidental Learning – child directed, natural activities
  - Occurs naturally with natural consequences
Strategies for Promoting Language

- Minimize direct questions
- Commenting – provide internal dialogue
- Wait and signal – clear, visible anticipation while looking at the child
- Communicative situations – create situations where child must use language to have needs met
- Modeling – provision of appropriate language
- Reduction – shorten sentences and match language ability of the child
- Expansion – increase linguistic complexity by one word
- Exaggerated intonation, volume, and rate of speech
- Reinforcement
Characteristics of Intensive Behavioral Intervention

- Appropriate for children up to 3 years old
- Average of 40 hrs/wk for a minimum of 2 years

Stages of Therapy

- Beginning – building a social relationship, establishing reinforcers, and “learning to learn”
- Middle – learning specific communication, play, self-help, and social skills
- Advanced – generalization of skills

Reinforcement

- Goal – provide reinforcers at natural frequencies
- The baseline rate of the disruptive behavior sets reinforcement schedule
- Social reinforcers should be paired with primary reinforcers
Disruptive Behavior

- Difficult to change, expect extinction bursts
- The primary barrier to the classroom is disruptive behavior, not lack of cognitive and language skills

Positive Learning Situations – situations where child is likely to be calm and cooperative
- Increases reinforcement
- Constantly identifies appropriate behaviors
- Allows for a positive relationship
- Makes learning situation enjoyable for the child

Behavior Management Techniques
- Provide the least amount of attention for disruptive behavior
- Praise, label, and reinforce de-escalation
- Utilize behavioral momentum to create a pattern of success
- Antecedents are the most important aspect of the disruptive behavior
A Work in Progress

- Escalation Cycle
  - Proactive Measures
  - Beginning Stage – slight agitation/disruption
    - If agitated, continue with activity but increase strength of reinforcement
    - If agitation increases, ignore behavior and give reinforcement as appropriate
  - Second Stage – moderate agitation/disruption
    - Use stimulus change procedures – identify and alter antecedent
    - Reinforce as appropriate and give soothing reinforcers as time passes
  - Third Stage – extreme agitation/disruption
    - Give specific instructions and avoid using “not”
    - Reinforce as child gains control
  - Final Stage
    - If child is a danger to self/others, use hands-on procedure
A Work in Progress

Sleep Problems
- Steps –
  - Establish a nighttime routine
  - Select a proper bedtime
  - Develop a “sleep object”
  - Keep child in own bed

Toilet Training
- Schedule Training – teach child to void when placed on a toilet and to withhold voiding at other times
  - Place child on toilet every 90 mins for a total of 15 mins
  - If child is consistently successful, lengthen schedule by 15-30 mins
  - If child does not void, shorten schedule to every 60 mins
- Shaping Independent Toileting
  - Place unclothed child on a chair next to the toilet every 90 mins for a total of 15 mins
  - If successful, add an article of clothing and slowly move chair farther from toilet
RESEARCH-BASED EVIDENCE: THE LOVAAS STUDIES

Lovaas (1987) –

• **Conditions:**
  - Experimental Group – intensive one-to-one treatment for an average of 40 hrs/wk for 2+ years ($n = 19$)
  - Control Group 1 – one-to-one treatment for at most 10 hrs/wk for 2+ years plus any community services ($n = 19$)
  - Control Group 2 – pre- and post-treatment data ($n = 21$)

• **Results:**
  - Experimental Group –
    - 47% passed 1st grade in a normal class with average or better IQ
    - 42% passed 1st grade in an aphasia class and within “mildly retarded range”
    - 10% placed in “autistic/retarded” class and within “profoundly retarded” range
  - Control Groups 1 & 2 –
    - 2% achieved normal functioning
    - 45% placed in aphasia classes
    - 53% placed in “autistic/retarded” classes

- **Experimental vs. Control Group** –
  - Experimental children in regular classes remained the same (47%)
  - Experimental group had significantly higher IQ scores
  - Experimental group showed more adaptive behavior

- **“Best-Outcome” Group vs. Typical Peers** –
  - Maintained level of intellectual functioning (99-136)
  - Did not display clinically significant levels of maladaptive behavior
  - Scored in normal range on personality inventory
  - One participant appeared to no longer be “normal-functioning”
Research-Based Evidence: Critiques of Lovaas

  - **Inappropriate Outcome Measures**
    - Absence of specific social, behavioral, and communication measures
      - **REPLY:** “Focused on more global measures of treatment outcome”
    - Use of mainstream classroom placements as evidence
      - **REPLY:** After pre-school, placement made without assistance
    - Improvement of IQ reflects improvement in compliance
      - **REPLY:** Severe intellectual deficits exist regardless of compliance
  - **Subject Selection Bias**
    - PMA of 11 months or greater (IQ = 37+) OR chronological age younger than 40-46 months excluded too many low functioning children
      - **REPLY:** Low scores on PMA were excluded because difficult to distinguish autism from “other profoundly retarded children”
    - Reported average IQ for treatment group (IQ = 63)
      - **REPLY:** An IQ = 63 is representative of a random sample of autistic children

- **Threats to Internal Validity**
  - Instrumentation – IQ scores on pre- and post-test measures; scores obtained under different experimental conditions
    - **REPLY:** No one test exists that covers all developmental levels; scores obtained are a conservative estimate of improvement
  - Selection – lack of random selection
    - **REPLY:** The assignment procedure as random as ethically possible

- **Threats to External Validity** – “representativeness” of the participants
  - **REPLY:** Lovaas sample is representative as compared to other samples

- **Threat to Construct Validity** – improvements may be due to intensive attention and contact rather than intensity of intervention
  - **REPLY:** Evidence suggests no benefit is derived from increased attention alone
RESEARCH BASED EVIDENCE: META-ANALYSES

Reichow and Wolery (2008)

- **Outcome Measures** – psychopathology (100%), IQ (92%), adaptive behavior (69%), academic placement (69%), diagnostic reclassification (62%), and language (46%)
- **Intervention Density/Duration** – 18.7 to 40 hrs/wk for 12-48 months
- **Diagnostic Reclassification** – 18%
- **Range of Effect Sizes** ($g_c$) –
  - IQ = -0.19 to 1.58
  - Adaptive Behavior = -0.25 to 0.86
  - Expressive Language = 0.23 to 1.72
  - Receptive Language = 0.45 to 1.79
- **Mean Effect Size** = 0.69 ($p < 0.001$)*
- **Moderator Analyses**
  - Supervisor Training Model – $B = 0.62$, $p = 0.01^*$
  - Intervention Duration – $B = 0.48$, $p = 0.097$
  - Total Hours of Therapy – $B = 0.40$, $p = 0.186$
Research Based Evidence: Meta-Analyses

- Virués-Ortega (2010) –
  - **IQ** – $ES = 1.19$, $p < 0.001$
    - ES tended to be stronger for clinic-based programs compared to parent-managed programs ($ES = 1.23$ and $1.02$, respectively)
    - No clear effects for treatment intensity or duration
  - **Language Skills** – $ES = 1.07$, $p = 0.004$
    - Receptive – $ES = 1.48$, $p < 0.001$
    - Expressive – $ES = 1.47$, $p < 0.001$
    - Dose-response trends for duration of intervention
  - **Adaptive Behavior Composite** – $ES = 1.09$, $p < 0.001$
    - Composite tended to be stronger for clinic-based programs compared to parent-managed programs ($ES = 1.17$ and $0.97$, respectively)
    - Communication subscale tended to be higher for the UCLA model compared to “general” ABA ($ES = 1.73$ and $1.17$, respectively)
    - Effects increased with intervention intensity but not with duration of intervention
Grindle, Kovshoff, et al. (2009) –

• Positive Aspects of EIBI –
  • Progress in language, communication, and social skills development
  • Additional support in the home
  • Improvements in parent-child and sibling-child relationships
  • Delight when goals were met (66% of mothers and 72% of fathers)

• Negative Aspects of EIBI –
  • Difficulty with finding new therapists and privacy within home
  • Lack of attention to siblings
  • Deterioration in relationship between parents
  • Disappointment at lack of progress (34% of mothers and 29% of fathers)
Characteristics of Early Start Denver Model (ESDM)

- ESDM is designed to be used for toddlers 12 months to 60 months of age.
- Treatment delivery is intensive, in-home, 20-hr per week, and one-to-one delivery model.

Theoretical Foundations

- The Original Denver Model – ASDs are viewed as a failure of social-communication development
- Imitation Impairments – the ability to imitate serves as first communication tool between infant and caregiver
- Social Motivation Hypothesis – children with ASDs do not find social interactions intrinsically rewarding

The ESDM seeks to reduce severity of ASD symptoms and increase developmental growth through dyadic exchanges in a natural, interactive play format.
Early Start Denver Model

- **ESDM Curriculum Checklist** – assesses developmental sequences of skills specific to ASDs
  - Scoring – Pass; Pass/Fail; Fail

- **Learning Objectives** – mastered within 3 months
  - Identifies the antecedent, the behavior, mastery criterion, and generalization criterion
  - Types – developmental sequences, behavior chains and behavior “bundles;” increasing behavioral frequencies and adding context; and linking existing behaviors to new antecedents

- **Time Interval Recording System** – behaviors are recorded ~15 minutes
  - A learning opportunity occurs ~10 seconds
Early Start Denver Model

Teaching Procedures

- Strategies from ABA – A-B-C sequence, prompting, reinforcement, fading, shaping, and chaining of behaviors
- Pivotal Response Training (PRT) – based on principles of ABA; trials presented in a natural, interactive framework
- The Denver Model – turn taking, dyadic engagement, elaboration of activities

Play – foundation of intervention

Joint Activity Routine – an elaborated play theme that allows for multiple teaching opportunities

- Unifying theme, joint focus and attention, logical sequence of events, turn taking, planned variation

Teaching methods target: receptive/expressive communication, social skills, play skills, cognitive skills, fine/gross motor skills, and adaptive skills.
EARLY START DENVER MODEL: RESEARCH-BASED EVIDENCE

- Dawson, Rogers, Munson, et al. (2010)
  - **Conditions** –
    - ESDM Group – combined 25 hrs/wk intervention for 2 years \((n = 24)\)
    - Assess-and-Monitor Group – intervention from the community \((n = 21)\)
  - **ESDM Group Results** –
    - Cognitive Ability – 17.6 point increase
    - Adaptive Behavior – steady rate of development
    - Diagnostic Status
      - 29% from AD to PDD-NOS
      - 8% from PDD-NOS to AD
    - Communication Skills
      - Receptive – 18.9 point increase
      - Expressive – 12.1 point increase

- Dawson, Jones, Merkle, et al. (2012)
  - “The ESDM intervention is associated with normalized brain activity related to social attention and engagement”
  - “. . . These normalized brain activity patterns are correlated with improvements in social behavior”
Early Start Denver Model: Research-Based Evidence

Vismara, Colombi, & Rogers (2009)

**Method** –
- 8 families of toddlers (ages 10-36 months) diagnosed with ASD
- Parent training sessions 1 hour per week for 12 weeks and 4 follow-up sessions for 1 hr each

**Results** –
- Significant increase in parent skills – mastery by 5th-6th week
- Children made consistent and sustained gains in target skills – spontaneous functional verbal utterances and imitative behavior

Vivanti, Dissanayake, Zierhut, and Rogers (2013) –

**Early Social Learning Skills** –
- Functional Use of Objects – 70% of variance in Visual Reception gains
- Social Attention – not related to treatment response
- Goal Understanding – 30% of variance in Receptive Language gains
- Imitation – 50% of variance in Fine Motor gains

**Symptom severity accounted for ~40% of variance in Expressive Language gains**
Established Treatments –

- **Antecedent Package** – includes behavioral momentum; cueing and prompting/prompt fading procedures; errorless learning; and incorporation of interests into tasks
- **Behavioral Package** – includes behavioral toilet training; chaining; differential reinforcement strategies; discrete trial training; reinforcement; shaping; successive approximation; task analysis; and token economies
- **Comprehensive Behavioral Treatment for Young Children** – involves combination of ABA procedures with young children delivered in a variety of settings
- **Modeling Package** – demonstration of the target behavior resulting in an imitation of the behavior
- **Joint Attention Intervention** – involves teaching a child to respond to the nonverbal social bids of others or to initiate joint attention interactions
Established Treatments, continued –
- **Naturalistic Teaching Strategies** – provision of a stimulating environment; modeling; providing choices; and direct/natural reinforcers
- **Pivotal Response Training** – targets motivation to engage in social communication, self-initiation, self-management, and responsiveness to multiple cues

Emerging Treatments –
- **Developmental Relationship-Based Treatment** – emphasizes the importance of building social relationships

Conclusions –
- Of the Established Treatments, two-thirds were developed from behavioral literature
- Behavioral treatments have “strongest research support at this time”
- Most common skills increased: interpersonal, communication, and play
- Most common behaviors decreased: problem behaviors and SER