Autism Interventions that Work- Or Not

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- "There are no miracle cures in autism, just a lot of blood, sweat and tears. As of yet, there are no pills, shots, diets, or other 'quick fixes' that cure autism completely and across the board."

  Koegel & LaZebnik, 2004, p. xiv

Individuals with ASD

- All have deficits in following triad of areas: Socialization, Communication, Behavior
- Present unique challenges in educational planning because as a group they demonstrate:
  - a wide range of abilities
  - different strengths and areas of weakness
  - different learning styles
  - different behavioral issues
  - different sensory issues

"No single best suited and universally effective method for all children and youth with ASD"

» Simpson, 2005, p. 145

No Child Left Behind

- Salient part of NCLB relates to scientifically-based research (SBR) practices
- "Research that involves the application of rigorous, systematic, and objective procedures to obtain reliable knowledge relevant to education activities and programs" (NCLB, 2002)

IDEA

- IDEA 2004 brought into alignment with NCLB
- The IEP must include "a statement of the special education and related services and supplementary aids and services, based on peer-reviewed research to the extent possible, to be provided to the child."

NCLB's Scientific Research Criteria

- Studies used systematic, empirical procedures
- Involves rigorous data analyses
- Relies on measurements or observational methods that provide valid and reliable data
- Is evaluated using experimental or quasi-experimental designs
- Enough detail provided to allow for replication
- Expert scrutiny such as acceptance by a peer-reviewed journal or approved by a panel of independent experts

Implications of SBR

- Appears to restrict and impede methods of research with federal money because oftentimes impossible to use randomized group designs with students with special needs (e.g., small samples, heterogeneous educational programs, need for flexibility in matching research designs to specific questions & issues)
- Appears to discount usefulness of teacher's clinical judgment and experience in decision making

– Simpson, LaCava, & Graner, 2004

Other Factors Related to Autism

- National Research Council 2001 investigated scientific evidence of effects of early intervention on young children with ASD at request of OSEP
- Increased prevalence of ASD
- Need for suitability for individual student
- Long-standing tradition of accepting and promoting strategies that lack efficacy
- Of all the disabilities, ASDs have the most "miraculous" cures

National Research Council 2001 Recommendations

1. Entry in programs as early as possible
2. Active engagement in intensive instructional programming (25 hours per week)
3. Repeated teaching in brief periods, one-on-one and small group
4. Inclusion of family component
5. Low student/teacher ratios
6. Ongoing program evaluation and assessment of progress

National Research Council 2001

Identified the following priorities:

- Functional, spontaneous communication
- Age-appropriate social skills
- Play skills, especially with peers
- Applied cognitive skills
- Appropriate behavior
- Functional academic skills

Selecting Treatments and Interventions

- Efficacy and anticipated **outcomes**?
- Are **outcomes** in harmony with the person?
- Potential **risks**?
- How will option be **evaluated**?
- What **proof** is available that option is **effective**?
- What other options would be **excluded** if this option is chosen?

» Simpson, 2005; Heflin & Alaimo, 2007

Simpson Recommends

- Interventions and treatments can take many forms such as single-subject designs, correlation studies, quasi-experimental designs as well as random samples and control and experimental groups.
- Caution considering a single source that is not supported by other researchers and entities but comes from testimonials
  - Simpson, 2005

Simpson Recommends

- Assessing extent outcomes associated with an approach align with needs of individual
- Considering extent supporting research was conducted with persons who are similar
- Evaluating potential social validity
- Implementing interventions with treatment fidelity
  - Simpson, 2005

Other Considerations

- Positive trajectory: Tendency for persons to improve over time regardless of the treatment
- Outcome measures (e.g., post intervention placement, changes in IQ)
- Placebo effect
- Consideration of entire family
  - Heflin & Alaimo, 2007

Simpson & Colleagues Review

- 33 commonly used interventions for children and youth with ASD
- Included considerations:
  - Reported outcomes
  - Qualifications of person's implementing intervention
  - How, where, and when intervention is best done
  - Potential risks
  - Costs
  - Methods for evaluating effectiveness
    - » Simpson, deBoer-Ott, Griswold, Byrd, Ganz et al., 2005

Simpson & Colleagues Review

- 5 categories of interventions/treatments
  - Interpersonal/relationship based
  - Skill based
  - Cognitive based
  - Physiological/biological/neurological based
  - Other

Interpersonal/Relationship Based

- Approaches are characterized by
  - Unconditional acceptance
  - Almost constant contact
  - Following the lead of the child
    - Heflin & Alaimo, 2007, p. 94

SKill Based Practices

- Emphasize attainment of skills and are characterized by the necessity to:
  - Assess skill deficits
  - Systematically teach skills
  - Collect data
    - Heflin & Alaimo, 2007, p. 95

Physiological/Biological/Neurological

- Characterized by an emphasis on:
  - Assessment by a specialist
  - Development of a treatment plan
    - Heflin & Alaimo, 2007, p. 95

Practices

- **Scientifically-based:** have "significant and convincing empirical efficacy and support" (p. 9).
- **Promising:** have "efficacy and utility with individuals with ASD, even though the intervention requires additional scientific support to be considered a scientifically based method" (p. 9)
- **Limited Supporting Information:** "evidence is lacking to make objective, scientific judgment" (p. 9). Does not necessarily mean it is without merit.
- **Not recommended**: lack efficacy and may be harmful
  - Simpson, de Boer-Ott, Griswold, Myles, Byrd, Ganz, et al., 2005

Scientifically Based Practices

- Applied Behavior Analysis *(skill based)*
- Discrete Trial Teaching *(skill based)*
- Pivotal Response Training *(skill based)*
- Learning Experiences: An Alternative Program for Preschoolers and Parents (LEAP) *(cognitive)*

Applied Behavior Analysis

- It is a theoretical framework for promoting behavior change, not a specific technique (Heflin & Alaimo, 2007)
- "The process of applying sometimes tentative principles of behavior to the improvement of specific behaviors, and simultaneously evaluating whether or not changes noted are indeed attributable to the process of application- and if so, to what parts of the process" (Baer, Wolf, & Risley, 1968, p. 91).

Discrete Trial Teaching

- "Intensive application of ABA principles within a structured teaching environment to teach specific skills" (Frea, 2000)
- (SD)---> Response(R) ---> Consequence (C)
- Components:
  - Attention
  - Presentation of the stimulus
  - Student response
  - Feedback
  - Intertrial interval

Learning Experiences: An Alternative Program for Preschoolers and Parents LEAP

- Educational approach that identifies individually designed objectives for each child
- Focuses on social development in inclusive settings (10 typically developing children and 3 with ASD; 2 teachers, 1 assistant and a full-time speech-language therapist who serves in the classroom and at home)
- Peers trained in social skill scripts
- Attend 15 hours/week year round

LEAP Curriculum

- Develops social and emotional growth
- Enhances language and communication
- Increases independence in work and play
- Facilitates choice making
- Increases capacity to cope with transitions and improve behavior
- Improves overall cognition and physical abilities
- Strain and Hoyson (2000) recommend 2-3 years daily intense training to maintain social skills.
  - Simpson et al., 2005, p. 163

National Standards Project

- Multiyear project completed 9/09
- Input from 45 experts
- Over 7,000 abstracts reviewed → 775 studies for analysis for individuals with ASD < 22 years old
- Focus on educational & behavioral interventions and not biomedical, except for curative diets
- 2 reports free at www.nationalautismcenter.org

National Standards Project

- One of primary objectives: identify evidence-based Rxs
- Extension of:
  - National Research Council (2001)
  - New York State Department of Health, Early Intervention Division (1999)

NRP 4 Factors of Evidence-based Practice

- Research findings
- Professional judgment
- Values and preferences
- Capacity

Goals of National Standards Project

- Identify levels of current research support for individuals with ASD < 22 years old
- Help parents, caregivers, educators, and service providers understand how to integrate essential info in making Rx decisions
- Identify limitations in existing Rx research

NRP Scientific Merit Rating Scale

- Research design- degree of experimental control
- Measurement of dependent variable
- Measurement of independent variable
- Participant ascertainment
- Generalization

Investigated Skills

- Academic
- Communication
- Higher cognitive functioning
- Interpersonal
- Learning readiness
- Motor skills
- Personal responsibility
- Placement
- Play
- Self-regulation

Findings of National Standards Project

- 11 Established Treatments
- 22 Emerging Treatments
- 5 Unestablished Treatments
- 0 Ineffective/Harmful Treatments

Importance to School Psychologists

- NASP "promote[s] educationally and psychologically healthy environments for all children and youth by implementing research-based, effective programs…"
  - » Wilczynski in *Communiqué, 38*(5), p. 25

Established Treatments

- Antecedent Package (99 studies)
- Behavioral Package (231 studies)
- Comprehensive Behavioral Treatment for Children (22 studies)
- Joint Action Intervention (6 studies)
- Modeling (50 studies)

Established Treatments

- Naturalistic Teaching Strategies (32 studies)
- Peer Training Package (33 studies)
- Pivotal Response Treatment (14 studies)
- Schedules (12 studies)
- Self-management (21 studies)
- Story-based Intervention Package (21 studies)

Antecedent Package

- Effective ages 3-18 years with autism
- Cost effective; requires minimal time
- Often used in combination with other Rxs
- Includes: choice, behavior chain interruption, priming, NCR, errorless learning, incorporating echolalia and obsessive behaviors, contriving motivational operations, environmental modification of tasks, etc.

Behavioral Package

- Effective ages 0-21 years with autism & PDD-NOS
- Designed to decrease problem behaviors and teach functional alternative behaviors
- Changing consequences is essential.
- Includes: behavioral sleep package, behavioral toilet training/dry bed practice, mand training, DTT, differential reinforcement, FCT, contingency contracting, shaping, task analysis, token economy, instructional fading, generalization training, etc.

Comprehensive Behavioral Treatment for Young Children

- Effective ages 0-9 years with autism & PDD-NOS
- Lovaas first evaluated CBTYC
- Includes combination of ABA procedures (e.g., DTT, incidental teaching, etc.); typically minimum 25 hours per week in center-based programs or home-based center with some community activities

Joint Action Routines (JARS)

- Effective ages 0-5 years with autism & PDD-NOS
- "***Joint action*** occurs when child and caretaker engage in mutual interest in or attention to the same object, activity, or experience" (Ben-Arieh, 2007, p. 14).
- Examples: preparation of a product, a story or plot line, cooperative turn-taking games or activities, daily living sequences (routines)

Rationale for Using JARS

- Permits students with ASD to learn language the way typically developing children do
- Improves joint attention and social referencing skills
- Fosters generalization skills
- Effective way to instruct in the reciprocal nature of social communication
- Consistent, predictable and structured routines may help with transition and self-regulation.

Modeling

- Effective ages 3-18 years with autism, AS & PDD-NOS
- Often combined with reinforcement and prompting
- Examples: live modeling, video modeling, self-modeling

Naturalistic Teaching Strategies

- Effective ages 0-9 years with autism & PDD-NOS
- Child directed interactions used to teach functional skills in natural environment
- Modeling, providing choices, reinforcing attempts used
- Examples: milieu teaching, incidental teaching, embedded teaching, responsive education, focused stimulation

Peer Training Package

- Effective ages 3-14 years with autism & PDD-NOS
- Children without disabilities taught to facilitate play and social interactions with children with ASD
- Examples: peer networks, Circle of Friends, integrated play groups, peer-mediated social interactions, peer initiation training, Project LEAP

Pivotal Response Treatment (PRT)

- Effective ages 3-9 years with autism
- Expansion of Natural Language Paradigm
- Goal is to eliminate learned helplessness "by using motivational procedures to force exposure to the response-reinforcer contingency and thereby develop intentional communication, first words, and expressive language" (Koegel & Koegel, 2006, p. 16).

PRT Areas Targeted

- Motivation
- Self-initiation
- Self-management
- Responding to multiple cues

Pivotal Response Treatment (PRT)

- Motivational procedures:
  - child choice (these may change day-to-day or even minute to minute)
  - rewarding attempts
  - interspersing maintenance and acquisition tasks
  - contingent reinforcement using consequences that are an intrinsic part of the task (opportunity to play with item requested by child) (p. 15, 143-144).

• Koegel & Koegel, 2006

Schedules

- Effective ages 3-14 years with autism
- Task lists of series of activities or steps to complete
- Often supplemented with reinforcement
- Helps improve self-regulation and assists with transitions

Self-management

- Effective ages 3-18 years with ASD
- Promotes independence by teaching behavior regulation through recording occurrence/ nonoccurrence of target behavior and receiving reinforcement for doing this
- Examples: checklists, wrist counters, visual prompts, tokens

Story-based Intervention Package

- Effective ages 6-14 years with autism & AS
- Written materials designed to increase independence similar to written scripts and self-management
- Most well known is Social Stories
- Provides info on who/what/when/where/why of target behavior

Social Story™

- Describes a social situation from individual's perspective in a story format
- Usually written in 1st person perspective but may be in 3rd person perspective
- Provides relevant social cues, perspectives, and common responses
- Serves as a visual cue
- Is personalized and often motivating
  - » From Carol Gray

Purposes of a Social Story™

- Teaches routines and changes in routines
- Increases understanding of expected behaviors
- Shares other's perspectives
- Corrects responses in a nonthreatening manner
- Translates student goals into understandable steps
- Describes social situations
- Personalizes social skills programs
- Goal has NEVER been to change behavior

Emerging Treatments

- Augmentative and Alternative Communication Device
- Cognitive-behavioral Intervention Package
- Developmental Relationship-based Treatment
- Exercise
- Exposure Package
- Imitation-based Interaction
- Initiation Training
- Language Training (Production)
- Language Training (Production & Understanding)
- Massage/Touch Therapy
- Multi-component Package

Emerging Treatments

- Music Therapy
- Peer-mediated Instructional Arrangement
- Picture Exchange Communication System
- Reductive Package
- Scripting
- Sign Instruction
- Social Communication Intervention
- Social Skills Package
- Structured Teaching
- Technology-based Treatment
- Theory of Mind Training

Picture Exchange Communication System (PECS)

- Augmentative/alternative communication system developed by Frost & Bondy
- Has 6 phases
- Children taught to approach and give picture of desired item to communicative partner in exchange for that item
- Teaches skills that are functional

PECS

- First communicative function is requesting
- Crucial component is that student become a ***persistent*** communicator rather than be prompted to communicate
- PECS is taught as a way to communicate, not a way to speak.

Unestablished Treatments

- Academic Interventions
- Auditory Integration Training
- Facilitated Communication
- Gluten- and Casein-Free Diet
- Sensory Integrative Package

Remember

- Treatment selection is complicated; need to consider person's unique history and needs.
- "Research findings are not the sole factor that should be considered when treatments are selected" (p. 25).
- Generally don't begin with Emerging Treatments because of limited support.
- But Emerging Treatments do warrant consideration and are promising.
  - » National Autism Center, 2009

Future Directions for National Standards Report

- Review literature covering lifespan and children "at risk" for ASD
- Reconsider inclusion of qualitative studies or other peer-reviewed studies excluded
- Modify Rx classification based on expert feedback
- Examine extent Rxs studied in real world
- Add reviewers to interpret peer-reviewed articles in non-English journals

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