The Society for Clinical Child and Adolescent Psychology (SCCAP): Initiative for Dissemination of Evidence-based Treatments for Childhood and Adolescent Mental Health Problems

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SOCIETY OF CLINICAL CHILD & ADOLESCENT PSYCHOLOGY

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DIVISION 53

American Psychological Association

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Workshop

Leap Preschool: An Evidence-Based Model of Intervention for Children with Autism Spectrum Disorders

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Part 1 of 4

What You Learn From Experience Depends On What You Attend To

- Bill Bricker
  - "Only when the perfectly designed intervention is delivered by the perfectly trained personnel can we begin to speculate about the capabilities of people with disabilities."

What You Learn From Experience Depends On What You Attend To

- Sidney Bijou
  - "Autism is a social reciprocity issue, nothing more, but nothing less."

What You Learn From Experience Depends On What You Attend To

- Don Baer
  - "You can't hope to have a successful intervention until you first figure out what you should intervene on."

Key Intervention Components

- Teaching typically-developing peers to facilitate the social and language skills of children with autism
- Functional goals and objectives determined largely by family requests
- Embedding ongoing learning opportunities into typical preschool routines

Key Intervention Components, cont

- Transdisciplinary model of service delivery
- Ongoing, daily data collection used to drive intervention
- Using a broad array of evidence-based practices (PECS, PRT, Errorless Learning, Incidental Teaching, Peer-Mediated Intervention)
- Structured parent skill training curriculum

Parent Training Modules

1. ABC's of Behavior
2. Understanding Behavior
3. Teaching Your Child to Follow Directions
4. Introduction to & Using Reinforcement
5. Deciding What to Teach
6. Planning Activities to Increase Desired Behavior
7. Teaching New Skills
8. Encouraging Communicate

Accountability Systems

- Engagement Data – Daily
- Daily data on objectives – decision making criteria
- Social behavior rating scale – Daily
- Appropriate/Inappropriate behavior rating scale – Daily

Defining Intensity

- Hours of 1:1 Instruction = Good Outcomes
- An Alternative Formula to Consider:

  opportunities to respond **x**
  functionality of opportunities **x**
  fidelity of intervention **x**
  social validity of outcomes **x**
  comprehensiveness **x**
  data-based decision making

  = Good Outcomes

Program History & Structure

- 3hrs / day, 5 days a week
- Start as close to 3 as possible. Earlier is Better
- Mixed age classrooms
- Co-teaching arrangement

Part 2 of 4

Top 12 Findings from LEAP Research

1. Day-one intervention effects on peer-mediated social skills.
2. With two years of intervention about 50% of target children engage in positive interactions at levels equivalent to typical peers.
3. Social effects last up to 6 years post intervention.
4. Inclusion, proximity, modeling isn't sufficient

Top 12 Findings, cont

5. Typical children are not harmed. In fact, they turn-out to be more socially competent than age cohorts.
6. No correlation between severity and outcome.
7. After two years vast majority of children do not reach diagnostic threshold on CARS
8. Family participation reduces depression and stress.

Top 12 Findings, cont

9. Family skill training results in changes in child appropriate behavior and compliance.
10. Preschoolers in year two can learn to self-monitor and self-reinforce classroom behavior.
11. Children make, on average, one to two months developmental progress per month enrolled.
12. Sustainability of outcomes is closely linked to quality of contemporaneous environment.

Ratio Makes a Difference

- Problems with 50:50
  - Commonality in daily lessons
  - "Missing" data
  - Proximity among children with ASD
  - Increasing reinforcement for typical children

Ratio Makes a Difference

- Benefits with 3:1
  - Generalization opportunities increased
  - Minimized "contagion effect" around problem behavior
  - Typical peers always have developmental matches in natural groupings

Zone Defense Is The Best Defense

When Adults Are Organized and Have Explicit Schedules and Responsibilities Then:

- Materials are ready to go when children arrive at an activity
- Maximizes generalization opportunities (across instructional agents)
- Large group time and monitoring strategies
  - Cueing "teacher"
  - Reinforcing engagement
  - Interrupting and redirecting

"Active" Engagement Is Key

- Rethinking Story Time and the "Dead Person"

"Active" Engagement Is Key

- Rethinking Circle and the "Dead Person"

"Active" Engagement Is Key

- Rotations and Novelty
  - Centers
  - Toys
  - Materials

"Active" Engagement Is Key

- Books as the Glue
  - *The Three Little Pigs* go to:
    - Art Activity
    - Circle
    - Free Play
    - Transitions

Reinforcer Assessment Is The Pivotal Assessment

- Developmental assessment and wasted time and money
- Conducting Reinforcement Assessments
  - Caregiver interview
  - Observation as a check
  - Paired comparisons
  - Choosing from the hierarchy
  - Repeated assessments

Part 3 of 4

Keeping To A Routine Is Insufficient Routine For Many

- Routine ≠ Redundancy
- Routine ≠ Restricted Stimuli
- Routines within Routines (Circle Example)

Routines Within Routines

Circle Time

Opening Song

1. Child passes out prop
2. Sing song
3. Child collects prop

Routines Within Routines

Circle Time

Child Choice Song

1. Child chooses song from 3-4 options
2. Props, Materials and/or Motor Movement are utilized with every song.

Routines Within Routines

Circle Time

Center Choices

1. Adult holds up name cards
2. Children come up and choose a Center
3. Children go off to play

Keeping To A Routine Is Insufficient Routine For Many

- Routines should help provide answers to these key questions.
  1. What am I doing now?
  2. Where am I in the Routine?
  3. How do I know when I'm finished?
  4. What comes next?

Why Be So Concerned About Social Skills

- Best predictor of positive, long term outcomes for people with special needs
- Foundation upon which many other crucial skills are built
- Major defining characteristic of children with special needs
- Often the first priority for families

Selecting Skills to Teach:

Specific Behaviors that Lead to Friendships

- Play Organizers
- Shares
- Assists
- Affection

Selecting Skills to Teach

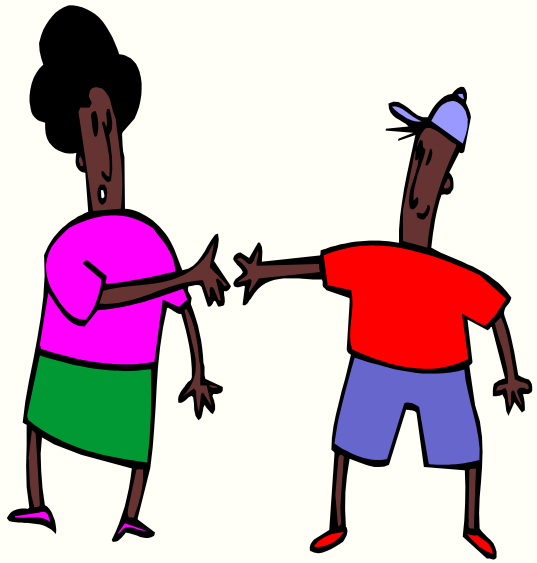
Specific Behaviors that Lead to Friendships

- Lengthy Encounters

- Reciprocity

Peer Mediated Strategies LEAP's Social Skills Curriculum

1. Getting Your Friends Attention
2. Sharing - "Giving Toys"
3. Sharing - "Requesting Toys"
4. Play Organizer
   - "You be the Mommy."
5. Giving a Compliment
   - "I like your painting."



Social Skill Curriculum – Teaching the Skills

1. Describe Skill
2. Demonstrate
   the "Right Way"
3. Demonstrate
   the "Wrong Way"
4. Child Practice with Adult
5. Child Practice with Child
6. Set up Reinforcement System

Part 4 of 4

Status of Previous Early Intervention RCTs for Children with Autism

- 4 RCTs
- Largest with 50 participants
- All demonstrating effects used DTT
- None provided any data on treatment fidelity
- None provided any data on treatment social validity
- None used typical service providers
- None occurred in typical preschool settings

The Five Primary Research Questions:

1. Do differential child outcomes occur across study groups after two years of LEAP implementation?
2. What is the relationship between implementation fidelity and child outcomes?
3. Are teachers' characteristics correlated with child outcomes?
4. Does child performance at the beginning of intervention predict ultimate outcomes at two years?
5. How do teachers rate the social validity of their experience implementing LEAP?

Fidelity of Implementation Data

	Intervention Classes			Comparison Classes		
	Start	End of Yr 1	End of Yr 2	Start	End of Yr 1	End of Yr 2
Mean QPI Scores	2.06	3.12	4.49	1.91	2.22	2.52
QPI Range	1.00-2.84	1.75-3.89	3.08-5.00	1.03-3.25	1.53-3.33	1.09-4.67
Mean Implementation	27%	53%	87%	23%	31%	38%
Implementation Range	0%-46%	19%-72%	52%-100%	0%-56%	13%-58%	2%-92%

Study Participants' Data At Start

	Full Replication		Manuals Only		
	Mean	SD	Mean	SD	**p scores**
Age at entry (months)	50.1	4.6	50.7	4.2	**>.49**
CARS	39.0	6.2	37.4	5.9	**>.34**
PLS-4 (Total Language Score)[b]	32.8	7.5	34.4	7.2	**>.28**
Mullen ELC[a]	59.6	6.9	63.2	6.6	**>.19**
Visual Reception[b]	32.3	6.6	34.6	7.0	**>.26**
Fine Motor[b]	31.9	6.4	34.8	6.2	**>.22**
Receptive Language[b]	30.8	7.6	33.4	9.0	**>.19**
Expressive Language[b]	28.9	7.4	30.3	8.2	**>.29**
SSRS Positive[c]	13.5	21.5	20.7	20.2	**>.13**
SSRS Negative[c]	63.5	15.2	53.4	16.5	**>.17**

[a] = Standard score
[b] = Age (months developmental) equivalent
[c] = Percentile rank score

Child Outcomes After 2 Years of Study Participation

	Full Replication			Manuals Only			
	Mean	SD	Δ	Mean	SD	Δ	**ES**
CARS	32.9	3.9	-6.1	34.6	4.2	-2.8*	**.59**
PLS-4 (Total Language Score)[b]	51.3	8.1	18.5	43.8	7.7	9.4**	**.92**
Mullen ELC[a]	68.5	7.5	8.9	61.4	9.0	-1.8**	**.89**
Visual Reception[b]	52.7	11.5	20.4	46.3	11.6	11.7**	**.80**
Fine Motor[b]	43.3	5.2	11.4	39.8	4.9	5.0*	**.81**
Receptive Language[b]	49.3	7.9	18.5	40.7	7.7	7.3**	**.89**
Expressive Language[b]	38.7	6.4	9.8	35.9	4.4	5.6*	**.60**
SSRS Positive[c]	42.1	12.6	28.6	32.7	11.9	12**	**1.22**
SSRS Negative[c]	56.5	4.2	-7.0	49.1	4.1	-4.3*	**.62**

ES = Effect size difference between Δ for full replication and Δ for manuals only group
* p < .05, ** p < .01 comparing Δ for full replication and Δ for manuals only group
Δ = Mean differences between initial assessment and Year 2 data.
[a] = Standard score
[b] = Age (months developmental) equivalent
[c] = Percentile rank score

Correlation Between QPI Scores At End Of Year 2 And Each Outcome Index Gain Score For Treatment And Comparison Classes

Outcome Measure	Full Replication r =	Manuals Only r =
CARS	.71	.73
PLS-4 (Total Language Score)	.86	.75
Mullen ELC	.72	.68
Visual Reception	.69	.75
Fine Motor	.80	.77
Receptive Language	.69	.69
Expressive Language	.75	.70
SSRS Positive	.82	.72
SSRS Negative	.67	.72

Social Validity Ratings By Lead Teachers In Intervention Classes

Social Validity Dimension	Mean Rating on 5pt. Scale	Range of Ratings
Applied	4.88	4 – 5
Effective	4.42	3 – 5
Flexible	4.46	2 – 5
Generalizable	4.25	3 – 5
Inexpensive	4.25	2 – 5
Practical	4.00	1 – 5
Simple	4.04	2 – 5
Socially Acceptable	4.83	3 – 5
Sustainable	4.54	3 – 5
Technology	4.71	4 – 5
Promoting Community Inclusion	4.63	2 – 5
Promoting Social Relations	4.50	3 – 5
Promoting General Progress	4.50	3 – 5
Reducing problem Behavior	4.38	2 – 5

Other Correlations

- Teacher experience and prior training are not related to outcomes.
- Child characteristics at start are not related to outcomes.
- Fidelity is sole, powerful predictor.

Comparisons with Other Autism RCTs

- DTT vs. Variety of EBP (package)
- 30-40 hrs vs. 17hrs
- Cog./Comm. effects vs. Across the board outcomes (i.e., lang., soc., cog. & behav.)
- University based vs. Public school based
- Small N vs. Pretty big N
- $60,000/yr vs. $20,000/yr

Big Ideas

- It takes time and lots of effort to get to fidelity but nothing less is worthwhile.
- Getting children with ASD "ready" for inclusion is nonsense (and a waste of intervention time). Getting inclusive settings "ready" for high needs children is quite appropriate.

Big Ideas, cont.

- You may not need the most expensive intervention delivered by the most highly degreed individuals to yield powerful outcomes.
- However, you probably need a wide array of evidence-based practices delivered to fidelity and this needs to be done in an engaging, fun environment.

Thank You

For additional training please contact the PELE center.

Resources

www.pelecenter.org
www.ttoolbox.com
phil.strain@ucdenver.edu

For more information, please go to the main website and browse for workshops on this topic or check out our additional resources.

Additional Resources

Online resources:

1. Positive Early Learning Experiences Center website: www.pelecenter.org
2. Society of Clinical Child and Adolescent Psychology website: http://effectivechildtherapy.com

Books:

1. Strain, P.S., & Bovey, E. (2008). LEAP preschool. In J. Handleman and S. Harris (Eds.). *Preschool education programs for children with autism*. Austin, TX: Pro-Ed.

Selected Peer-reviewed Journal Articles:

1. Kohler, F. W. & Strain, P. S. (1999). Maximizing peer-mediated resources within integrated preschool classrooms. *Topics in Early Childhood Special Education, 19*, 92-102.
2. Strain, P.S., Bovey, E.H., Wilson, K. & Roybal, R. (2009). Leap Preschool: Lessons learned of over 28 years of inclusive services for young children with autism. *Young Exceptional Children, Monograph Series, 11*, 49-68.
3. 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.
4. Strain, P.S. & Hoyson, M. (2000). On the need for longitudinal, intensive social skill intervention: LEAP follow-up outcomes for children with autism as a case-in-point. *Topics in Early Childhood Special Education, 20*, 116-122.

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