OASIS Parent Training: Development and Implementation with Parents of Young Children with Autism

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Juniper Gardens Children’s Project
Learning Objectives

- learn elements of effective intervention strategies
- learn ways to effectively reach underserved populations
- be provided with effectiveness data regarding:
  - the use of technology for parent education
  - the use of technology for parent training
- be provided with data regarding:
  - consumer satisfaction data with training content and skill development
  - numbers trained
  - capacity building
Some Basic Facts
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- ABA is currently the most effective treatment for children with Autism
- Must be implemented with high fidelity
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- Over 59 million people live in rural/remote areas of the US alone (U.S. Census, 2000)
  - Over 20% of the population
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• Children in rural areas have Autism, too.
  • Autism is as prevalent in rural areas as urban areas (Montes & Halterman, 2006)
Some Basic Facts

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• Over 59 million people live in rural/remote areas of the US alone (U.S. Census, 2000)
  • Over 20% of the population
• Children in rural areas have Autism, too.
  • Autism is as prevalent in rural areas as urban areas (Montes & Halterman, 2006)
• Trained ABA professionals are less accessible in rural areas than in urban areas
Previous Research

• Home and community-based interventions
  • Funded through waiver(s)
  • Non-standard training
  • Aggressive clientele

• 2002 received capacity building funds from Johnson County Developmental Supports
Online Behavioral Aide Training System

- Provided in-service and pre-service training to individuals interested in working with children with Autism
- Combination of online and face-to-face training
- Pre-posttest evaluations to measure learning
- Hands-on training for skill acquisition
- Weekly sessions (8) under the supervision of two Behavior Analysts
- Promoting skill acquisition through modeling, prompting and skill practice
Original Participants

• Participants
  • 9 behavioral aides
    • Recruited through the Autism Society of Johnson County and word of mouth
    • All participants were paid $15.00/hour up to 5 hours per week
  • 5 families that had a child diagnosed with Autism
    • Kansas City, KS and Kansas City, MO
• Setting
  • Online training accessed from home, library and work
  • Face-to-Face skills training located at a facility in Johnson County, KS
Original Measures

- Instructional effectiveness of the online tutorials
  - Pre-posttest gains
  - Self-reported satisfaction and usability
    - Online tutorials
    - Face-to-Face skill acquisition sessions

Wednesday, October 12, 2011
Pre-Post Test Results

- All Aides demonstrated pre-posttest knowledge gains
- On average 17%

Pre and Posttest Performance

Trainee

Pretest Mean = 66.49%
Posttest Mean = 83.51%

Current Criterion

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Post Training Survey Results

On a scale of 1-5 with 1 being the most important/satisfied, all trainees reported:

• Module content as very important
• High satisfaction with Module content (except 6)

• Skill acquisition sessions as very important
• Satisfaction with Skill acquisition sessions
Why Parents?

• History in assessment and diagnostics
• Parents were completing the online tutorials
• Applied for funding from the National Institute on Disability Rehabilitation Research
OASIS Training Program for Parents

Online and Applied System for Intervention Skills Training
OASIS Training Program for Parents

- Introduce ABA concepts and principles through online training tutorials
- Apply concepts through hands-on training during coaching sessions delivered via live interactive television (telemedicine)

The training covers:

- Background information about Autism Spectrum Disorder
- Basic ABA principles and procedures
- How to collect and analyze data for data-based intervention decision making
- How to work with treatment teams and other providers
Eight Training Modules

- Each module consists of
  - Web-based activities
  - Telemedicine coaching sessions
  - Qualitative Data Collection
    - Problem Behavior Recording Chart (PBR/ABC)
    - Incidental Teaching Chart (ITC)
**Online Activities for Each Module**

- Complete an online tutorial
  - Definitions and examples
  - Active responding (answering questions, interactive simulations)

- 20-item online assessment
  - Includes immediate, elaborated feedback
  - Three tries to score 90% or higher

- Daily completion of Problem Behavior Recording form
  - A-B-C chart

- Weekly completion of Incidental Teaching form
  - Skill(s) targeted, procedures used, rating of child’s general response, and success of the procedure
Autism: Characteristics & Treatment

The Three Domains of Autism

Communication  Behavior  Socialization

When deficits are seen in all three areas, Autism is diagnosed.
Next, we’ll cover each of these domains.
Fading Prompts

Fading Verbal Prompts

Purpose:
Wait longer and longer to prompt Chase to put down his cup, until Chase puts down the cup without a prompt.

What you do:
1) Click "Begin" and Chase will take a drink
2) When he finishes drinking, click Mom before the timer gets out of the green area to make her prompt Chase to put the cup on the table.

Hint: Don't prompt too early or the prompt won't fade, but don't wait too long, or Chase will throw his water!
Telemedicine Activities for Each Module

- Parent(s) bring child to local school, hospital, or community center that has Polycom video conferencing equipment
- Review of tutorial content, assessment, and answer questions
- Review of information from incidental teaching and problem behavior forms
Telemedicine Activities for Each Module

• Review of information from problem behavior forms and incidental teaching form

PBR

• Teaches data collection
• Teaches understanding of antecedents/behavior/consequences

ITC

• Increases use of procedures outside of teaching times (generalization)
• Increases teaching opportunities for children
### Problem Behavior Recording Sheet

<p>| | | | | | | | | | |</p>
<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Time</td>
<td>Establishing Operation</td>
<td>Place (room and location w/in room)</td>
<td>Persons Present</td>
<td>Activity</td>
<td>Immediate Antecedent</td>
<td>Behavior</td>
<td>Consequence</td>
<td>Behavior</td>
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<td>Begin</td>
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</table>

**Special Notes:**

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Incidental Teaching
(Please complete this chart each night whether or not you used a procedure. If you did not use a procedure, mark N/A)

Child's Name: ___________________________  Parent/Observer: ___________________________

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Place</th>
<th>Persons Present</th>
<th>Activity</th>
<th>Behavior targeted for change (e.g. pulling on shirt)</th>
<th>Procedure/ Technique Used</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>E.g. Positive practice, FCT, etc.</td>
<td>What did your child do?</td>
</tr>
</tbody>
</table>

On a scale of 1-10, please rate the following with 1 being the lowest rating (e.g. difficult behavior, not very effective) and 10 being “wonderful”.

1. How capable did you feel in responding to child’s behavior? 1 2 3 4 5 6 7 8 9 10
2. Overall how effective was the procedure in managing child’s behavior? 1 2 3 4 5 6 7 8 9 10
3. Overall how effective was the procedure in producing new skill? 1 2 3 4 5 6 7 8 9 10
4. Overall how was your child’s behavior today? 1 2 3 4 5 6 7 8 9 10
5. Are there any questions/comments? ___________________________

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On a scale of 1-10, please rate the following with 1 being the lowest rating (e.g. difficult behavior, not very effective) and 10 being “wonderful”.

1. How capable did you feel in responding to child’s behavior? 1 2 3 4 5 6 7 8 9 10
2. Overall how effective was the procedure in managing child’s behavior? 1 2 3 4 5 6 7 8 9 10
3. Overall how effective was the procedure in producing new skill? 1 2 3 4 5 6 7 8 9 10
4. Overall how was your child’s behavior today? 1 2 3 4 5 6 7 8 9 10
5. Are there any questions/comments? ___________________________

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Telemedicine Activities for Each Module

• As directed by trainers, parent(s) practice ABA procedures described in tutorial with their child
  • Trainers provide immediate feedback and guidance
  • Each module has at least one parent skill assessment
  • Requires at least 80% mastery before moving to the next module
1) Discussion of online materials (5-10 min)

- **Online Quiz** - Review missed questions and ask if they have any additional questions.

- **PBR/ITC** - Take the next 5-10 minutes to review the online charts with the parents. Remember to be receptive to any questions or concerns they may have. Offer suggestions and guidance with any situations brought up. Avoid introducing new terminology, but use layperson terms to describe. Prompt parents if they have not been completing the forms.

- Go over the data the parent collected/graphed at home

2) Module Overview (5-10 min)

Coach:

“We’re going to start by going through a brief overview of the online module. This module focused on some of the main principles of behavior. Some of these major concepts included the three-term contingency, reinforcement, punishment, and basic shaping procedures. Let’s begin by discussing the three term contingency. The three-term contingency consists of the antecedent, the behavior, and the consequence.

Do you remember what we mean by antecedent?
Tally coach comments during coaching session: Coach should comment on the following parent behaviors and/or prompt parents to discuss or implement the behaviors during the coaching session. (Numbers in parentheses denote the very minimum recommended number of times a comment should be made)

<table>
<thead>
<tr>
<th>Behavior Description</th>
<th>Minimum Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinforces looking ( Gets attending behavior prior to each trial)</td>
<td>[3]</td>
</tr>
<tr>
<td>Reinforces appropriate sitting (sitting quietly)</td>
<td>[3]</td>
</tr>
<tr>
<td>Keeps instructions short</td>
<td>[3]</td>
</tr>
<tr>
<td>Delivers preferred item contingent w/in 3 secs of correct response ( activity specific) – both verbal and non-verbal</td>
<td>[3]</td>
</tr>
<tr>
<td>Provides accurate behavioral descriptions (e.g. you picked up the block!)</td>
<td>[2]</td>
</tr>
<tr>
<td>Provides choice between two items and labels them</td>
<td>[2]</td>
</tr>
<tr>
<td>Allows access to item for no more than 1 min</td>
<td>[2]</td>
</tr>
<tr>
<td>Provides a choice between two items that are different than the previous choices and labels them</td>
<td>[2]</td>
</tr>
<tr>
<td>Allows access to item for no more than 1 min</td>
<td>[2]</td>
</tr>
<tr>
<td>Provides choice between two winners of previous choice and labels them</td>
<td>[2]</td>
</tr>
<tr>
<td>Allows 5-10 sec access or no access to the final choice depending on child and if the parent will use the item in a trial immediately following the preference assessment</td>
<td>[2]</td>
</tr>
</tbody>
</table>
Structured Activity – Skill Assessment
Parent Handout - Instructions

**Principles of Behavior**

<table>
<thead>
<tr>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank Paper</td>
</tr>
<tr>
<td>Writing Instrument</td>
</tr>
<tr>
<td>Maze for advanced learners</td>
</tr>
</tbody>
</table>

There are three activities that you will do to shape the behavior of your child. Make sure your child is sitting facing the table and the materials are placed directly in front of them.

**Motor Imitation**

*Simple*
1. Clap hands
2. Touch head side

*Intermediate*
1. Touch Elbow
2. Finger to palm

*Advanced*
1. Rolling Hands (wheels on the bus)
2. Right arm up & Left arm out to

**Drawing/Coloring**

*Simple*
1. Vertical line
2. Color in shape

*Intermediate*
1. Draw an “X”
2. Draw a letter

*Advanced*
1. Snowman (3 connecting circles)
2. Complete a maze

**Echoics**

*Simple*
1. Simple sound

*Intermediate*
1. Difficult word

*Advanced*
1. Difficult phrase
Observer: Please observe the parent engaging with the child on the behaviors described below for 2 separate activity trials. Record a correct response as a “+” and incorrect response as a “-”.

<table>
<thead>
<tr>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>Shaping</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>Conducts a preference assessment or offers a choice before each activity</td>
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<td></td>
<td></td>
<td>Provides child with appropriate instructional request (simple instruction)</td>
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<td></td>
<td></td>
<td>Accepts an approximation</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Initial approximation receives reinforcement three times</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Once an approximation has been reinforced three times does NOT reinforce again</td>
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<td></td>
<td></td>
<td></td>
<td>Differentially reinforces best approximation in comparison to previous responses</td>
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<tr>
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<td></td>
<td>Reinforces previous response if child is unsuccessful with current response requirement</td>
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<td></td>
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<td></td>
<td>Repeats directive in even tone of voice</td>
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<td></td>
<td>Provides elevated social praise for correct responses.</td>
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<td></td>
<td>At end of activity, allows child to engage w/identified potential reinforcer for a couple of minutes</td>
</tr>
</tbody>
</table>

**Mastery Criterion:** Parents must score 80% or higher to complete this skill fluency assessment. This means that the parent(s) must earn at least one + for each required response (row) and it must add up to 80% correct or higher across all opportunities to respond. So, a parent may not have to do all activities to reach mastery but must meet the 80% criterion across all required responses.

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Telemedicine Coaching Session
OASIS Evaluation

- Research Questions
  - Can parents learn ABA from a distance with the OASIS Training Program?
    - To what degree do they gain knowledge about ABA principles and procedures?
    - To what degree do they make observable gains in implementing ABA procedures and teaching strategies?
    - To what degree do gains sustain over time?
Evaluation Design

- Multiple-baseline across 5 families (7 participants)
- Children between 2 - 5 years old
  - Within 6 months of initial ASD diagnosis
- Summary of activities
  - 1-3 initial baseline (pretest) skill assessments
    - Onsite at KU Medical Center
    - Approximately 30 minutes
  - At least 16 weeks of training
    - About 2 weeks per module depending on parent skill acquisition
  - Posttest skill assessment
    - About 2 weeks following completion of training
  - Follow-up skill assessment
    - 6 months
    - 1 year
Evaluation Measures

• Knowledge gains
  • Posttest performance following each tutorial
    • 20 items
  • Global pre- to posttest performance
    • 48 items, 6 selected from each module

• Skill gains
  • Demonstration of key skills in each of the following areas
    • Reinforcer delivery
    • Structuring the environment
    • Errorless learning/shaping procedures
    • Managing transitions and breaks
  • Total of 47 key skills across all areas
  • Assessed during sessions and at baseline, posttest, and follow-ups
    • Same assessments administered at baseline, posttest, and follow-up
How do parents score following each online tutorial?
To what degree do parents gain knowledge about ABA principles and procedures?

![Pre-Post Knowledge Assessment Scores](image)

*Percent Gain: P1 22.9, P2 29.4, P3 42, P4 31, P5 90, P6 23, P7 12.5*
To what degree do parents gain skill from pre-post intervention?
Do parents improve their implementation of ABA procedures and techniques with their own child?

How do those skill gains sustain overtime without ongoing training?
How do Primary vs. Secondary Parents Compare on Skill Acquisition?

Comparison of Skill Improvement Between Primary and Secondary Parents

Percent Correct

Pre  Post

Primary  Secondary
Consumer Satisfaction

Online Importance/Satisfaction

Telemendece Importance/Satisfaction

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How much travel was saved by using the OASIS distance training model with 10 trainees?

<table>
<thead>
<tr>
<th>Trainee</th>
<th>Miles to KUMC</th>
<th>Miles to local Telemed Site</th>
<th>Miles saved</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>34</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td>P2</td>
<td>120</td>
<td>35</td>
<td>85</td>
</tr>
<tr>
<td>P3</td>
<td>33</td>
<td>4</td>
<td>29</td>
</tr>
<tr>
<td>P4</td>
<td>181</td>
<td>37</td>
<td>144</td>
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<tr>
<td>P5</td>
<td>139</td>
<td>38</td>
<td>101</td>
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<tr>
<td>P6</td>
<td>260</td>
<td>0.6</td>
<td>259</td>
</tr>
<tr>
<td>P7</td>
<td>181</td>
<td>21</td>
<td>160</td>
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<tr>
<td>P8</td>
<td>37</td>
<td>18</td>
<td>19</td>
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<tr>
<td>P9</td>
<td>90</td>
<td>7</td>
<td>83</td>
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<tr>
<td>P10</td>
<td>55</td>
<td>9</td>
<td>46</td>
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</tbody>
</table>

**Total** | 1130 | 174.6 | 955

\[(955 \times 2) \times 10 \text{ ps} \times 16 \text{ sessions} = 305,600\]
Challenges

- Significant family commitment over a 16 week period
  - Maintaining online assignments
  - Weekly travel with child to telemedicine site
    - Arranging care for siblings
  - Telemedicine sites’ hours of operation
  - Frequent schedule changes
- Coordinating with telemedicine site
  - Most sites not designed for intervention sessions
- Occasional network problems
- Maintaining long-distance contact with families over an extended period

Juniper Garden’s Children’s Project
Future Directions

- Impact on child outcomes
  - Increases in communication, functional and adaptive behavior?
  - Decreases in challenging or problematic behavior?
  - Randomized trial on effectiveness of training on long-term child outcomes
- Investigate implementation with other technologies
  - Common web-based video conferencing software (Skype, Ovoo, etc.)
    - Further reduce travel, family’s response cost, and coordination with telemedicine sites
- How would occasional follow-up booster sessions impact parent skill sustainability?
- Identifying strategies for reducing costs of administering training

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Acknowledgements

Appreciation goes out to…

The **trainers** for their help in evaluating this training program

The **children and their parents** who participated

The **funding agencies** that have helped make this work possible: Johnson County Developmental Supports, the Sunflower Foundation of Kansas, OSERS, and NIDRR

Drs. **Monika Suchowierska and Kenda Morrison** who played an integral role in helping develop the original training program