Randomized Comparison of Parent-Teacher Consultation for Students with Autism

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Introduction

► Autism remains one of the most difficult disorders to understand, diagnose, and treat.
► Autism results from an alteration of normal brain development.
► No single cause for autism has been identified to date.
► A consensus is building that autism results from multiple etiologies.
► Therefore, any single biologic or pharmacologic therapeutic solution appears distant.
Numbers of children served IDEA has increased by more than 500% in the last decade (GAO, 2005).

Average cost expenditure for educating a student with autism is about three times the average cost expenditure for educating a student without a disability.
Statement of the Problem

- Increased numbers of children seeking services from public-funded agencies.
- Limited translational research.
  - Move studies from lab/clinic into community

⇒ Community-based providers with few resources to guide service delivery and scalability.
Teacher Training Outcomes in Autism

- Collaborative Consultation and Teacher Coaching Intervention
  - National Institutes of Mental Health (MH073071)
  - The project described was supported by Grant Number R34MH073071 from the National Institute of Mental Health. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Mental Health or the National Institutes of Health.

- Co-Investigators, Dr. John McGrew & Nancy Dalrymple
Why do we need autism-specific approaches to build an individual program?

- The diagnosis does not prescribe a treatment that works the same way for all.
- The diagnosis does not describe specific educational/teaching goals.
- Intervention/teaching methods are not the same as curriculum.
- INDIVIDUALIZATION is key.
Competence

► Competence results from the interaction between the person and his / her environment.

► Competence is when one is able to make use of *environmental and personal resources* to achieve a desirable outcome.

► The environment may contribute or hinder competence.

► *Both the person and the environment* must be considered for improving outcomes.
An Alternative View of Outcome

Ruble & Dalrymple, 1996

Quality of Life

Risk Factors
Personal & Environmental

Competence

Protective Factors
Personal & Environmental
Speech and Language Therapy
Social Skills Training
Occupational Therapy
Functional vs Academic vs Vocational
Developmental vs Age Appropriate
Inclusion
Discrete Trial - ABA
Incidental Teaching
Structured Teaching - TEACCH
Educating Children with Autism

NATIONAL RESEARCH COUNCIL
Collaborative Model for Promoting Competence and Success (COMPASS)

► Building environmental supports through understanding how autism affects a specific individual
Other Resources on COMPASS

► Technical Assistance Manual on Autism for Kentucky Schools, 1995

► School-based consultation called COMPASS (Ruble & Dalrymple, 2002)
  ▪ Family-centered
  ▪ Process focused
  ▪ Outcomes based framework
Design

- Longitudinal and prospective (school year)
- Randomized with control group (usual school program)
  - Teachers of students with autism were recruited
    - if more than 1 student, students were randomly selected
Methods

► 24 teachers, children, parents/caregivers (35 total)
► Randomized for COMPASS Consultation
  ▪ 3 hour collaborative consultation
    ► Parent and teacher
  ▪ 4 teacher coaching sessions (1.5 hours each)
    ► Parent invited, not required to attend
► Outcomes
  ▪ Evaluator is unaware of group assignment
  ▪ Child Achievement of IEP Goal (direct observation)
Child Participants

All met criteria for DSM-IV-TR of autism

- Autism Diagnostic Observation Schedule-G
- Autism Diagnostic Interview-R
- Childhood Autism Rating Scale
# Child Participants

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>20 males (83%)</td>
</tr>
<tr>
<td></td>
<td>4 females (17%)</td>
</tr>
<tr>
<td>Mean Age</td>
<td>6 yr, 2 months</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>81% Caucasian</td>
</tr>
<tr>
<td></td>
<td>14% African American</td>
</tr>
<tr>
<td></td>
<td>5% Biracial</td>
</tr>
<tr>
<td>Parent Income</td>
<td>39% $25,000 – $50,000</td>
</tr>
<tr>
<td></td>
<td>44% $51,000 - $100,000</td>
</tr>
</tbody>
</table>
## Child Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differential Abilities Scale</td>
<td>Tscore=36.0 (19.8)</td>
</tr>
<tr>
<td>Picture Similarities</td>
<td></td>
</tr>
<tr>
<td>Oral and Written Language Scales</td>
<td>Sscore=46.9 (8.6)</td>
</tr>
<tr>
<td>Vineland Adaptive Behavior Scales (teacher report)</td>
<td></td>
</tr>
<tr>
<td>Behavior Assessment System for Children-2</td>
<td>Tscore=60 (7.6)</td>
</tr>
<tr>
<td>Externalizing Composite (teacher report)</td>
<td></td>
</tr>
<tr>
<td>Childhood Autism Rating Scale (severe symptoms)</td>
<td>39.6 (7.3)</td>
</tr>
</tbody>
</table>
# Teacher Participants

<table>
<thead>
<tr>
<th>Years Teaching</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In general</td>
<td>11 (SD=8)</td>
</tr>
<tr>
<td>Students with autism</td>
<td>7 (SD=7)</td>
</tr>
<tr>
<td>Demographics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urban</td>
</tr>
<tr>
<td></td>
<td>Rural</td>
</tr>
</tbody>
</table>
Outcomes

► Child
  ▪ Accomplishment of IEP Goals
    ► Goal Attainment Scaling (Kiresuk, Smith, Cardillo, 1994)

► Teacher
  ▪ Stress
    ► Index of Teaching Stress (Part B) (Greene, Abidin, Kmetz, 1997)

► Parent/Caregiver
  ▪ Stress
    ► Parenting Stress Index (Abidin, 1983)
Overview of COMPASS

- Planning is process-based by helping all members reach consensus through understanding of the child.
- The child’s ability to learn is based on environmental factors as well as factors within the child.
- Proactive problem solving that can be done on an ongoing basis is demonstrated and encouraged.
- Research-backed practices for autism are emphasized.
Teaching plan is specific to autism (includes social, communication, and work or learning skills)

Forms used during meeting are specific to autism

Teaching plans are based on consensus of priority concerns

Teaching strategies are linked to each specific skill
Holistic understanding of how autism affects a specific child

Challenges (Risk Factors)
- Personal
- Environmental

Supports (Protective Factors)
- Personal
- Environmental

Competence
Research Supported Practices


  - A review of the research to identify the most effective models of best practice in the management of children with autism spectrum disorders. Sydney: Centre for Developmental Disability Studies.
Examples of RSP

► **Pro-Social and Play Related Interventions**
  - Social Stories
  - Peer-Mediated Instruction
  - Social Script Training

► **Language and Communication-Based Interventions**
  - Augmentative Communication
  - Picture Exchange Communication System (PECS)
  - Verbal Behavior Approach (VB)
  - Functional Communication Training

► **Intervention for Challenging Behavior**
  - Positive Behavioral Supports (Non-Intrusive Methods)

► **General Skill Building**
  - Behavioral Teaching (ABA)
  - Environmental Supports/Structure
  - Picture Activity Schedules

► **Expressive Psychotherapies**
  - Cognitive Behavior Therapy (CBT)
National Research Council
Recommendations for IEPs

- Social skills
- Communication
- Engagement in developmentally appropriate tasks
- Fine and gross motor skills to be utilized when engaging in age appropriate activities.
- Cognitive or thinking skills
- Replacement of problem behavior with appropriate behavior.
- “Work behaviors” important for classroom success (following instructions, completing a task)
COMPASS Action Plan for Students with Autism

Step 1: Conduct Functional Assessments

Step 2: Identify and Discuss Personal / Environmental Challenges and Supports

Step 3: Prioritize Teacher and Caregiver Goals

Step 4: Write Measurable Objectives

Step 5: Develop Teaching Plans & Identify Environmental Supports

Step 6: Implement Plans

Step 7: Monitor Progress and Make Adjustments

COMPASS COACHING
Step 1: Conduct Functional Assessments

- Social behaviors / skills
- Communication
- Learning / work skills (start a work activity; work until finished; indicate finished to another)
- Other areas such as fine/gross motor; cognitive; academic; etc
Step 2: Caregivers and School Personnel Identify and Discuss Personal and Environmental Challenges & Supports
## PERSONAL SUPPORTS

### SENSORY SUPPORTS

<table>
<thead>
<tr>
<th></th>
<th>Teacher</th>
<th>Caregiver</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sound/Auditory</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likes music</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likes to sing and/or dance</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Touch/Tactile</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>likes to be touched</td>
<td></td>
<td></td>
</tr>
<tr>
<td>likes hugs and cuddling when he/she initiates it</td>
<td></td>
<td></td>
</tr>
<tr>
<td>likes to play in water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>likes baths or swimming pools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>seeks out mud, sand, clay to touch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prefers certain textures of clothing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>likes being rolled or sandwiched between blankets/cushions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>likes rough and tumble play</td>
<td></td>
<td></td>
</tr>
<tr>
<td>other</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Movement/Vestibular</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>enjoys rocking, swinging, spinning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>likes being tossed in the air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>likes to run</td>
<td></td>
<td></td>
</tr>
<tr>
<td>likes and needs to move</td>
<td></td>
<td></td>
</tr>
<tr>
<td>other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### LIKES/PREFERENCES/INTERESTS

<table>
<thead>
<tr>
<th></th>
<th>Teacher</th>
<th>Caregiver</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
### PERSONAL CHALLENGES

These skills were marked as very difficult.

<table>
<thead>
<tr>
<th>Personal Management</th>
<th>Teacher</th>
<th>Caregiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finishing a task</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being quiet when required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing basic self care independently</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toileting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating - utensils and a variety of foods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dressing and /or undressing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entertaining self in free time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staying within boundaries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changing activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### GENERAL CHALLENGES

These skills were marked as very difficult.

- Personal Management
  - Waiting
  - Finishing a task
  - Being quiet when required
  - Performing basic self care independently
  - Toileting
  - Eating - utensils and a variety of foods
  - Dressing and /or undressing
  - Entertaining self in free time
  - Staying within boundaries
  - Changing activities
  - Comments:

- Responding to others
  - Listening
  - Accepting “no”
  - Answering questions
  - Using yes/no appropriately
  - Responding to greeting
  - Accepting help
  - Making a choice
  - Sharing other's enjoyment
  - Giving eye contact appropriately
  - Accepting correction
  - Comments:
Step 3: Prioritize Parent & Teacher Goals

- Consensus is reached through discussion of pivotal skills needed for future competence
  - Communication (e.g., initiation of communication)
  - Social behaviors (e.g., turntaking)
  - Learning / work skills (e.g., working independently)
# COMPASS

## Summary of Concerns

<table>
<thead>
<tr>
<th>Caregiver Concerns</th>
<th>Teacher Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
</tr>
</tbody>
</table>

Other Concerns:
Step 4: Write Measurable Objectives for Priority Goals

- Describe present levels of performance
- Use formal and informal assessment information
  - Teacher / parent observation
  - Rating scales
  - Standardized tests
Goal Writing and Measurement

Criteria for Objectives:

- Measurable
- Observable
- Objective
IEP Goal and Objective

Goal:

“Student will become a responsible member of the family and community including effectiveness in community service”

Benchmark:

“Student will interact with peers in small and large group activities and special area activities.”
Step 5: Develop Teaching Plans

- Identify Environmental Supports necessary for accomplishing specific goal
Planning Sheet

Concern/Goal Area: ______________________________________

Measurable Objectives: ___________________________________

Present Level: _________________________________________

Challenges

Personal

Environmental

Personal

Supports

Environmental

COMPASS Grant 2007

Ruble & Dalrymple
# Environmental Supports

**Teaching plan for ________________________________**

<table>
<thead>
<tr>
<th>Teaching Methods</th>
<th>Materials</th>
<th>Who/Where/When</th>
<th>Data System</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Step 6: Monitor Progress

► Coaching Sessions:
  - Conduct semi-structured interview
    - How often is skill taught
    - Who is the primary teacher
    - Are data being kept
  - Conduct direct observation of teacher demonstrating skill with child
    - Provide feedback, modeling, problem solving as needed
Step 6: Monitor Progress

► Data Collection
  ▪ Frequency, duration, intensity, latency recording
  ▪ Goal Attainment Scaling (GAS)
Goal Attainment Scaling

GAS

► Used as broad indicator of level of progress
► Not to replace weekly data collection methods
► Steps:
  1. Identify present levels of performance (what does the child do now)
  2. Identify measurable goal
  3. Identify behaviors that indicate progress toward goal
  4. Identify behaviors that indicate more than expected level of progress
### Goal Attainment Scale (GAS)

<table>
<thead>
<tr>
<th>Student's Name: <strong>Robbie</strong></th>
<th>Evaluation Date/Age: ____________</th>
<th>Today's Date: ____________</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>-2</strong> Present level of performance</td>
<td><strong>-1</strong> Progress</td>
<td><strong>0</strong> Expected level of outcome (GOAL)</td>
</tr>
<tr>
<td>Robbie does not respond independently to greetings from adults or peers. He does respond with verbal prompting from adults.</td>
<td>Given 5 opportunities throughout the school day to independently return a greeting, Robbie will return a greeting from an adult or peer 1 out of 5 times.</td>
<td>Given 5 opportunities throughout the school day to independently return a greeting, Robbie will return a greeting from an adult or peer 3 out of 5 times.</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------------------------</td>
<td>-----------------------------</td>
</tr>
</tbody>
</table>

---

Robbie does not respond independently to greetings from adults or peers. He does respond with verbal prompting from adults.

Given 5 opportunities throughout the school day to independently return a greeting, Robbie will return a greeting from an adult or peer 1 out of 5 times.

Given 5 opportunities throughout the school day to independently return a greeting, Robbie will return a greeting from an adult or peer 3 out of 5 times.

Given 5 opportunities throughout the school day to independently return a greeting, Robbie will return a greeting from an adult or peer 3 out of 5 times.

Robbie will initiate a greeting with peer/adult with visual cues by saying “hi” or waving.
Step 7: Make Adjustments

- Data Based Decision Making
Results

► Factorial Analysis of Variance

- Independent Variables
  - Time (pre and post)
  - Group (exp and control)

- Dependent Variable
  - Child: Gas Score (Total and by learning domain)
  - Teacher: Stress
  - Parent: Stress
Estimated Marginal Means of Social GAS Score

<table>
<thead>
<tr>
<th></th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>18.3***</td>
</tr>
<tr>
<td>Group</td>
<td>8.0**</td>
</tr>
<tr>
<td>Time X Group</td>
<td>2.7, n.s.</td>
</tr>
</tbody>
</table>

*p<.05

**p<.01

***p<.001
Estimated Marginal Means of Communication GAS Score

<table>
<thead>
<tr>
<th></th>
<th>Time</th>
<th>Group</th>
<th>Time X Group</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F=16.7**</td>
<td>F=1.5, n.s.</td>
<td>F=0.3, n.s.</td>
<td></td>
</tr>
</tbody>
</table>

* p<.05
** p<.01
*** p<.001
Estimated Marginal Means of Teacher Stress (Part B Raw Score)

Group Assignment

- Control
- Experimental

Time	F=.48, n.s.
Group	F=2.0, n.s.
Time X Group	F=3.3, n.s.
Estimated Marginal Means of Parent Stress - Parent Domain

<table>
<thead>
<tr>
<th>Source</th>
<th>F-value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>0.007</td>
<td>n.s.</td>
</tr>
<tr>
<td>Group</td>
<td>0.001</td>
<td>n.s.</td>
</tr>
<tr>
<td>Time X Group</td>
<td>2.0</td>
<td>n.s.</td>
</tr>
</tbody>
</table>
Estimated Marginal Means of Parent Stress-Child Domain

- **Time**:
  - F = 3.7, n.s.
- **Group**:
  - F = 6.1*
- **Time X Group**:
  - F = 0.07, n.s.

* p < .05
** p < .01
*** p < .001
Conclusion

► Child Outcomes

- Overall goal attainment was better in exp group
- Social and Communication skill goal attainment did not differ as a function of the intervention
Conclusion

► Teacher Outcomes
  ▪ There was no difference teacher stress
    ► Need to evaluate further, teachers completed forms when aware of group assignment
    ► Need to build in supports

► Parent Outcomes
  ▪ No difference between groups on stress as function of intervention
    ► Need further study, parents completed forms when aware of group assignment
Conclusion

- Consultation with teacher is not enough
  - Consultation must include follow-up sessions
  - Consultation must include whole team for generalization, especially parents and speech pathologists

- Data Collection is a challenge
  - IEP objectives must be measurable
  - Coaching sessions must include data collection training and interpretation for planning

- Collaborative parent-teacher consultation facilitated achievement of IEP objectives
  - Need more research on ways to impact core symptoms of autism
Questions

► Does consultation & coaching increase teacher stress – why and what to do?
  ▪ Need to build in more supports to teachers
Future Research

- Consultation research is difficult!
  - Teacher (cognitions and behaviors)
  - Parent
  - Child
  - Other factors (School variables)
- More research conducted in schools, using real teachers and real situations
- More studies with training school personnel as consultants
- More studies with meaningful outcomes
  - Teacher report not adequate – need direct observation
Thank you!

- Parents and teachers, Indiana & Kentucky
- Children
- Nancy Dalrymple, Consultant
- Dr. John McGrew, Indiana Un. - Purdue Un.
- Dr. Angie Miller, Un. Kentucky
- Research team
  - Melissa Wheatley
  - Alex Nounopolous
  - April Young