Recent Advances in Behavioral Skills Training: 
A Research Update

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Abstract

- Behavioral Skills Training (BST) consists of instructions, modeling, rehearsal to mastery and feedback.
- This BCBA CEU event will describe recent developments in BST including component analyses of BST, applications to multiple skills, teaching staff to train other staff (pyramidal training), abbreviated training formats, online BST and developing and evaluating systems of training.
Learning Objectives

● Participants will describe:
  1. Procedures to conduct components analyses and the outcomes of component analyses of
  2. Recent research on pyramidal training, abbreviated training formats and on line BST; and
  3. How to develop and evaluate training systems.
Overview

1. Caregiver Training Needs
2. How to train caregivers
   - Caregiver skill acquisition
   - Effects on child behavior
   - Generalization of caregiver skills
3. Component analyses of behavioral skills training
4. Future Directions
PART I.
Importance of Caregiver Training

- ABA interventions depend crucially upon caregiver behavior
- Large numbers of staff are employed
  - turnover is high
- Many family members, supervisors and professionals are
  - Limited skill repertoire
  - Untrained
  - Inappropriately trained
Caregiver Training Needs

- National Research Council (2001)
- Support Infrastructure
  - Personnel preparation
    - Pre-service
    - Orientation
    - Professional training
  - In-service
- Technical assistance
- Applied research
- Demonstration
- Comprehensive statewide planning
NRC (2001): Methods and Content

- **Who?**
  - Teachers, school psychologists, behavior analysts (!), OT, PT

- **Methods**
  - Not academic classes, didactic presentation alone

- **Content**
  - “Best practices” including ABA, naturalistic teaching, incidental teaching, assistive technology, generalization and maintenance of child behavior
Survey of Staff Training Needs: Sturmey (unpublished data)

- 101 participants
  - Mostly classroom assistants (N = 61)
  - Teachers (N = 14)
  - Others (speech, etc) (N = 26)
- 6 different special educational settings
- ABA schools for children with ASDs.
The five most important items were:

- identifying teaching goals
- ensuring children will not injure themselves or other classmates
- use of manual prompts
- using reinforcers correctly
- creating new reinforcers
The five least important items were

- social study skills
- science and math skills
- physical education skills
- educating families about IDEA
- IEP’s and removal of a student from a classroom.
Conclusions

- Results agree with NCR panel recommendations
- Staff training in special education should focus on
  - Basic teaching skills
    Research addresses this fairly well
  - Child safety
    Ignored
    Anecdotal observations support its importance
PART II. How To Train Caregivers

- Reid and Parsons (1995)
  - Effective
  - Efficient
  - Acceptable
2. Caregiver Skill Acquisition

What does not work?

- Going to school
- Reading a book
- Typical verbal in-service

Working in services for years
A fascinating talk by Professor Sturmey
What does work?
Behavioral Skills Training!

- Task analyze and define teaching performance
  - Brief (2 – 15 minutes max) instructions and rationale
  - Modeling (live, role play, video)
  - Rehearsal to mastery criterion
  - Feedback (verbal, graphical, immediate or delayed)
Lavie & Sturmey (2002)

- **Problem:** Staff did not use preference assessments
- **Setting:** Specialist school for children with autism
- **Participants:**
  - 3 assistant teachers
  - 8 children
    - 3-5 years
    - Autism spectrum disorders
Paired Stimulus Preference Assessment: 9-step task analysis

- (1) Put two stimuli on the table in front of the child (0.7m from one another and 0.7m from the child) and wait for 5 s.
- (2) If the child touches a stimulus remove the non-chosen stimuli immediately.
- (3) Let the child interact with the chosen stimulus for 5 s. If the child samples the stimulus at the first opportunity move on to Step (9). Etc
Staff Training Procedure

Two 30-40 minute training sessions
1. Skills were briefly described
2. Staff were given a checklist
3. Staff trainer verbally described the skills
4. Skills were demonstrated using a videotape model.
5. Staff were observed practicing the skills while working with a child.
6. Staff trainer provided corrective and / or approving feedback to staff
7. Steps 4, 5, and 6 were repeated until staff performed 85% of the steps correctly for two consecutive sessions.
Effects now replicated on multiple and complex skills with multiple caregivers

- Natural Language Paradigm skills (Gianoumis & Sturmey, 2012)
- Natural Language Paradigm skills and response chaining (Seiverling et al., 2009)
- Implementing PT skills (Nabayama & Sturmey, 2010)
- Mand training (Nigro-Bruzzi & Sturmey, 2011)
- Interaction skills (Finn & Sturmey, 2009)
- Compliance training (Marroquin & Sturmey, 2014)
- Direct and systematic replications on discrete trial teaching, incidental teaching activity schedules (Fetherston & Sturmey, in preparation)
- Pyramidal training
  - Mand training (Nigro-Bruzzi & Sturmey, 2011)
  - Peer-peer skills training (Finn & Sturmey, 2014)
2. Effects on Child Behavior

Brienes & Sturmey (2007)

Problems:

- Staff not teaching DTT well
- Idiosyncratic errors in teaching
- Staff members associated with high / low rates of stereotypy
Participants and Setting

- Two classrooms in an ABA school for children with autism
- Three boys aged 9, 12 and 12 years
- High rates of stereotypy
- Three staff for each child
- Staff associated with high and low rates of stereotypy
## Descriptive Assessment

### Student Mike

<table>
<thead>
<tr>
<th>Student</th>
<th>Stereotypy</th>
<th>Initiated Eye Contact</th>
<th>Proximity to Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brooke</td>
<td>22-40%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Christie</td>
<td>8-12%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Ann</td>
<td>9-16%</td>
<td>0%</td>
<td>45-47%</td>
</tr>
</tbody>
</table>
Child Outcomes Are Variable

- Increases in child correct responses
- Decreases in child maladaptive behavior
- Why?
  - Getting one thing wrong may be critical
  - Training new skills vs. Changes in stimulus control of existing responses
  - Beware of publication bias
    - (Don’t believe everything that you cannot read!)
3. Generalization of Caregiver Teaching Skills

- One child may have programs for
  - DTT, incidental teaching, mand training, activity schedule, behavior support plan, other child-specific plans
- Typical ABA teacher and TA have
  - 8 children x 15 programs = 120 programs
  - Plus new programs, children, child-specific procedures
- Float staff may have
  - 5 classrooms x 8 children x 15 programs = 600 programs
- Supervisors, principals, consultants
  - Respond appropriately to hundreds of children, thousands of programs
Generalization and Discrimination of Caregiver Teaching Procedures

- Generalization across children, programs, materials and locations
- Discrimination between programs, materials and teaching procedures
Lafasakis & Sturmey (2007)

- Problem:
  - Parents do not know how to teach imitation to their children
- Three parent-child dyads
  - All parents low income and had not previous training in DTT
- Children aged 4 years old
  - Autism
  - Intellectual disability and self-injury
  - Down syndrome
Design

- Train parent to implement Gross Motor Imitation Training
- Probe parents teaching on Oral-Motor Imitation Training
- Observe child correct responses on both program types
- Train parents using BST
Ward-Horner & Sturmey (2009)

- Parents trained to use DTT with preschool children
- Role plays designed with general case training
- All parent data = generalization data
- Child correct responses and maladaptive behavior
Summary of Results

- Parent teaching skill generalized from role play to teaching their own child
- Efficient
- Some potential advantages over live training
- Effects on child behavior variable
PART III. COMPONENT ANALYSIS
Ward-Horner & Sturmey (2012)

- ABA has relatively few component analyses
- Treatment packages may be
  - Inefficient
  - May include socially invalid elements that are not needed
- Unclear what the mechanism for change is
What is (are) the effective component(s) of BST?

- Three analog baseline conditions
- Trained with
  - Rehearsal only
  - Modeling only
  - Feedback only
  - Combinations
  - Counter-balanced
Conclusions

- Findings
  - Instructions and rehearsal – never effective
  - Modeling – effective sometimes
  - Feedback – always effective
- Feedback = Modeling (?) > instructions, rehearsal
- Instructions = Rehearsal
- Future Research: Is this true of
  - All skills?
  - All staff?
Implications

- Caregiver training could be made more efficient
  - Video-models may be sufficient
    - Could be done in group format
  - Feedback can be added, if needed
- Parametric studies
  - How many of what kind of models are needed?
  - How much of what kind of feedback delivered when is effective?
CONCLUSIONS

- Caregivers need effective, efficient, acceptable training in basic ABA skills
- BST meets these criteria
  - Caregiver teaching acquisition is robust
  - Generalization to similar programs, novel children is robust
  - Effects on child behavior is variable
LIMITATIONS:

Its Not Just How To Teach

- Also **what** to teach
  - Selecting and using a curriculum effectively
  - Selecting and sequencing child goals
- Program evaluation
  - Taking and graphing reliable data
  - Evaluating child progress and taking corrective action (Maffie et al., in preparation)
- Training supervisors / lead teachers to train
- Developing even more efficient methods
  - Group training
  - Video modeling where shown to be effective
  - Observer effect
FUTURE DIRECTIONS

1. Conduct further component analysis of BST
2. More data on
   (a) Integrity of IV
   (b) Social validity
3. DTT-specific issues
   (a) Teach staff to program generalization
   (b) Pyramidal training
   (c) problems solving, evaluation, revision of programs (Maffei et al., in progress)
4. Examine the limits of generalization of teaching skills and how to program generalization
5. Methods other than BST
   1. Observer effect?
   2. Modeling alone?
6. Systems issues
7. Teach more complex staff skills
   1. Chaining
   2. shaping
Future Directions

- Develop models of Caregiver training that permit real world dissemination that meaningfully impact child skills acquisition
  - More efficient training methods
  - Address caregiver skill maintenance
- Developing Caregiver training curriculum
  - Level 1: Preference assessments
  - Level 2: Basic teaching skills
    - DTT, incidental teaching, mand training
  - Level 3: Advanced teaching skills
    - NLP, routines, chaining, shaping, task interspersal, program evaluation and revision
  - Level 4: Training other caregivers
Future Directions: On line training

- Practice has already begun
- Research is catching up
  - Few evaluations
- Much promise
  - Opportunities for contingency interventions
  - Curriculum design
  - Prompt fading
- Many practical problems to solve
  - People have to sign up
  - Technology compatibility
  - Video problems
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For more information

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