Using pantomime to teach discrimination of social cues to a youth with Aspergers Syndrome

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The Shape of Behavior
Introduction
Research Overview

• Behavior analytic research since the early 70’s confirms over-selectivity in autism. (Koegel & Koegel, 1995; Ploog, 2010)
• Cognitive developmental research since the 80’s have developed theories of perceptual differences in autism. (Cohen, 2001; Ploog, 2010)
• Neuroscientists have recently measured those with autism having anomalies in eye gaze towards faces. (Golarai, 2006)
• Children with autism show deficits in imitating facial models and imitation improved with non-verbal modeling only. (De Quinzio, 2007)
• Generalizing social behaviors may require identification of verbal and non-verbal stimuli conditions. (Reeve, 2007)
• Video modeling maybe effective by accentuation and minimization of stimulus features to help combat stimulus overhelectivity (LeBlanc, 2003)
Introduction
Social Skill Curriculum Review

• Some social skill curriculums recommend drama activities (McAfee, 2002; Baker, 2003)
• Structured learning incorporates elements of script stage acting providing structured practice. (McGinnis & Goldstein, 1997)
• Some developmental approaches use elements of improvisation with exaggerated affective cues. (Gutstein, 2000; Greenspan, 2006)
• Some cognitive approaches use activities similar to script writing to think about social scenarios (Winners, 2002; Gray, 2000)
• Personal clinical experience is that drama increases motivation in social skills groups.
Introduction
Theoretical Foundations

• Scientists seek new technology and artist sometimes discover it.
• Social communication involves multiple concurrent verbal, non-verbal, and covert behavior classes.
• Theatre arts disciplines isolate these same behaviors to focus on different modes of self expression.
• Using elements of theatre in social skill training is one way to target & systematically combine these behavior classes for instruction.
## Introduction

### Theoretical Application

<table>
<thead>
<tr>
<th>Social Communication</th>
<th>Theatre Arts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concurrent behavior classes</td>
<td>Corresponding Disciplines</td>
</tr>
<tr>
<td>1. Non-verbal body language</td>
<td>Pantomime</td>
</tr>
<tr>
<td>2. Voice Pragmatics</td>
<td>Puppets &amp; script reading</td>
</tr>
<tr>
<td>3. Non-verbal + voice</td>
<td>Script acting</td>
</tr>
<tr>
<td>4. Social decision making</td>
<td>Script writing</td>
</tr>
<tr>
<td>5. Setting contextual clues</td>
<td>Prop / background design</td>
</tr>
<tr>
<td>6. All of the above</td>
<td>Improvisation</td>
</tr>
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</table>
Method
Subject, Setting, & Variables

• **Subject**
Nine year old boy diagnosed with Asperger’s Syndrome and ADHD.

• **Setting**
In the home with parents and sibling present. Family direct participation was optional.

• **Dependent Variable: Target Behaviors**
Labeling emotion video clips with a word choice card.

• **Independent Variable: Intervention**
Pantomime based structured learning targeting pivotal attending and discrimination strategies.
Method
Assessment Stimuli Materials

Emotion Video Clips

<table>
<thead>
<tr>
<th>Intensity Level</th>
<th>Happy Group</th>
<th>Sad Group</th>
<th>Angry Group</th>
<th>Afraid Group</th>
</tr>
</thead>
</table>
Method
Research Design and Assessment Procedures

Research Design
• Simple A-B design with pre and post test
• Pre-test given to typical boy 2 years younger for comparison.

Assessment Procedures
• Emotional word vocabulary was pre-taught with Mind Reader software definitions and a word choice chart was provided during testing.
• Discrimination was tested for 4 basic emotion groups and 3 intensity levels.
• Two examples were used with each of the 12 emotions for a total of 24 video clips.
• The software manuals age equivalent ratings were used as a general guide for age appropriate target emotions.
• The software was developed under the direction of University of Cambridge and the clips were validated by an expert panel.
• Approximations were counted when the subject labeled the correct emotion group, but was one intensity level off.
• On the graphs showing performance by group and intensity level the approximations were factored as 1/2 correct response.
Method

Intervention Procedures

• Three one-hour sessions included pantomime games and structured learning of pivotal behavior.
• Took turns watching, guessing, and acting.
• Generalization homework assigned after third session.
• Students affinities and choice used for motivation and reinforcement.
• Think out-loud self-instruction strategies modeled & practiced noticing facial cues.
• Prompt fading of hints before role-play sessions.
# Method

## Pivotal Skill Task Analysis & Teaching Steps

<table>
<thead>
<tr>
<th>Pivotal Skill: Identifying Emotions through Facial Expression</th>
<th>Structured Learning Teaching Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Look at eyes</td>
<td>1. Define the Skill</td>
</tr>
<tr>
<td>2. Look at mouth</td>
<td>2. Provide Rationale</td>
</tr>
<tr>
<td>3. Look at head</td>
<td>3. Model the Skill</td>
</tr>
<tr>
<td>4. Decide the emotion group</td>
<td>4. Role-play the Skill</td>
</tr>
<tr>
<td>5. Decide the intensity level</td>
<td>5. Provide Feedback</td>
</tr>
<tr>
<td>6. Decide the emotion</td>
<td>6. Transfer</td>
</tr>
</tbody>
</table>

*The Shape of Behavior*
## Method

### Facial Discrimination Cues

<table>
<thead>
<tr>
<th>Facial Area</th>
<th>Happy</th>
<th>Sad</th>
<th>Angry</th>
<th>Afraid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eyes</strong> (Size, direction, gaze)</td>
<td>Open Big Looking straight ahead</td>
<td>Closed Small Looking down</td>
<td>Closed Small Looking straight ahead</td>
<td>Open Very big Looking around</td>
</tr>
<tr>
<td><strong>Mouth</strong> (Lips, mouth)</td>
<td>Smile</td>
<td>Frown</td>
<td>Tight Lipped</td>
<td>Open Mouth</td>
</tr>
<tr>
<td><strong>Head</strong> (Tilt, movement)</td>
<td>Up May shake in a yes nod</td>
<td>Tilted down May shake in no nod</td>
<td>Maybe tilted forewords. Shake back and forth.</td>
<td>May tilt backwards</td>
</tr>
</tbody>
</table>
Results

Pre-Test: Subject & Typical Peer

Post-Test: Subject

The Shape of Behavior
Results
Pre-Test: Subject & Typical Peer
Post-Test: Subject

Percentage

Video Correct

Video Approx.
Results
By Emotion Group and Level

Emotion Video Tests
(by emotion group)

![Chart showing video clips correct by emotion group and level.]

- Happy Group
- Sad Group
- Angry Group
- Afraid Group

Emotion Video Tests
(by level)

![Chart showing video clips correct by level and emotion group.]

- Low
- Medium
- High

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Results
By Emotion Group and Level

Emotion Video Tests (by emotion group)

Emotion Video Tests (by level)
Results

• This study combined a theoretical discussion, literature review, and a brief preliminary study that needs more rigorous testing.
• Subject did not complete assigned generalization homework.
• Performance varied across emotion groups and levels showing areas of competence and deficits.
• Subject scored moderately lower on video pre-test than the typical younger peer.
• Post test showed gains as subject scored moderately higher than the typical peer.
• Results promising considering brevity of intervention.
• Subject used the think out loud strategies during post-test.

Social Validity

Target Relevance:
• Parents reported son’s difficulty with social skill generalization

Treatment Acceptability:
• Subject initiated contact upon arrival, cooperated without complaint, and showed positive affect throughout.
• Sister requested and was allowed to participate.
• Mother was pleased that her daughter was included since she often feels left out.
• Dad shared his appreciation that his son’s special interest were used for motivation.
**Discussion**

Limitations and Challenges

- Simple A-B design with pre and post test.
- No inter-observer agreement conducted.
- Multiple baseline across emotions considered.
- Original subject cancellation and time constraints.
- Finding new subject with specific diagnosis.
- Mind Reader software had excellent stimuli but it was not designed for assessment.
- There is no exact standardization for facial expressions.
- Difficulty deciding how to account for approximations.
Discussion
Future Research

- More rigorous methods to extend current study with multiple baseline design.
- Comparisons of teaching interventions and assessment tools.
- Relative pivotal importance of different social cues.
- Incorporating video modeling and feedback.
- Collaboration with theatre professionals and expansion to other theatre disciplines.
- Basic research on task analysis & chaining of concurrent behavior classes.
- Cross disciplinary studies on perception deficits in autism.
References