

# 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 overselectivity (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

<b>Social Communication</b>	<b>Theatre Arts</b>
Concurrent behavior classes	Corresponding Disciplines
1. Non-verbal body language	Pantomime
2. Voice Pragmatics	Puppets & script reading
3. Non-verbal + voice	Script acting
4. Social decision making	Script writing
5. Setting contextual clues	Prop / background design
6. All of the above	Improvisation



# 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

Intensity Level	Happy Group	Sad Group	Angry Group	Afraid Group
High	3.Delighted	6.Upset	9.Furious	12.Terrified
Med	2.Happy	5.Sad	8.Angry	11.Afraid
Low	1.Fine	4.Disappointed	7.Frustrated	10.Worried



# 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

### Pivotal Skill : Identifying Emotions through Facial Expression

1. Look at eyes
2. Look at mouth
3. Look at head
4. Decide the emotion group
5. Decide the intensity level
6. Decide the emotion

### Structured Learning Teaching Steps

1. Define the Skill
2. Provide Rationale
3. Model the Skill
4. Role-play the Skill
5. Provide Feedback
6. Transfer



# Method

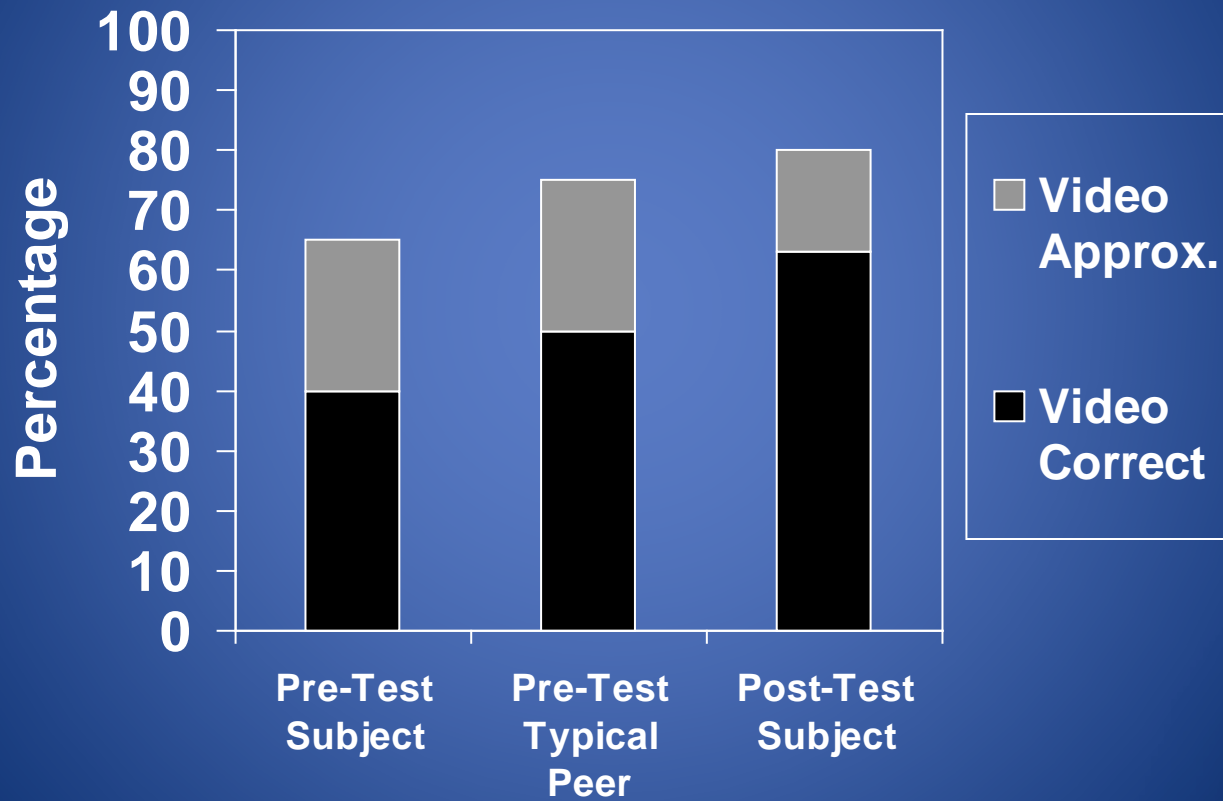
## Facial Discrimination Cues

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

# Results

Pre-Test: Subject & Typical Peer

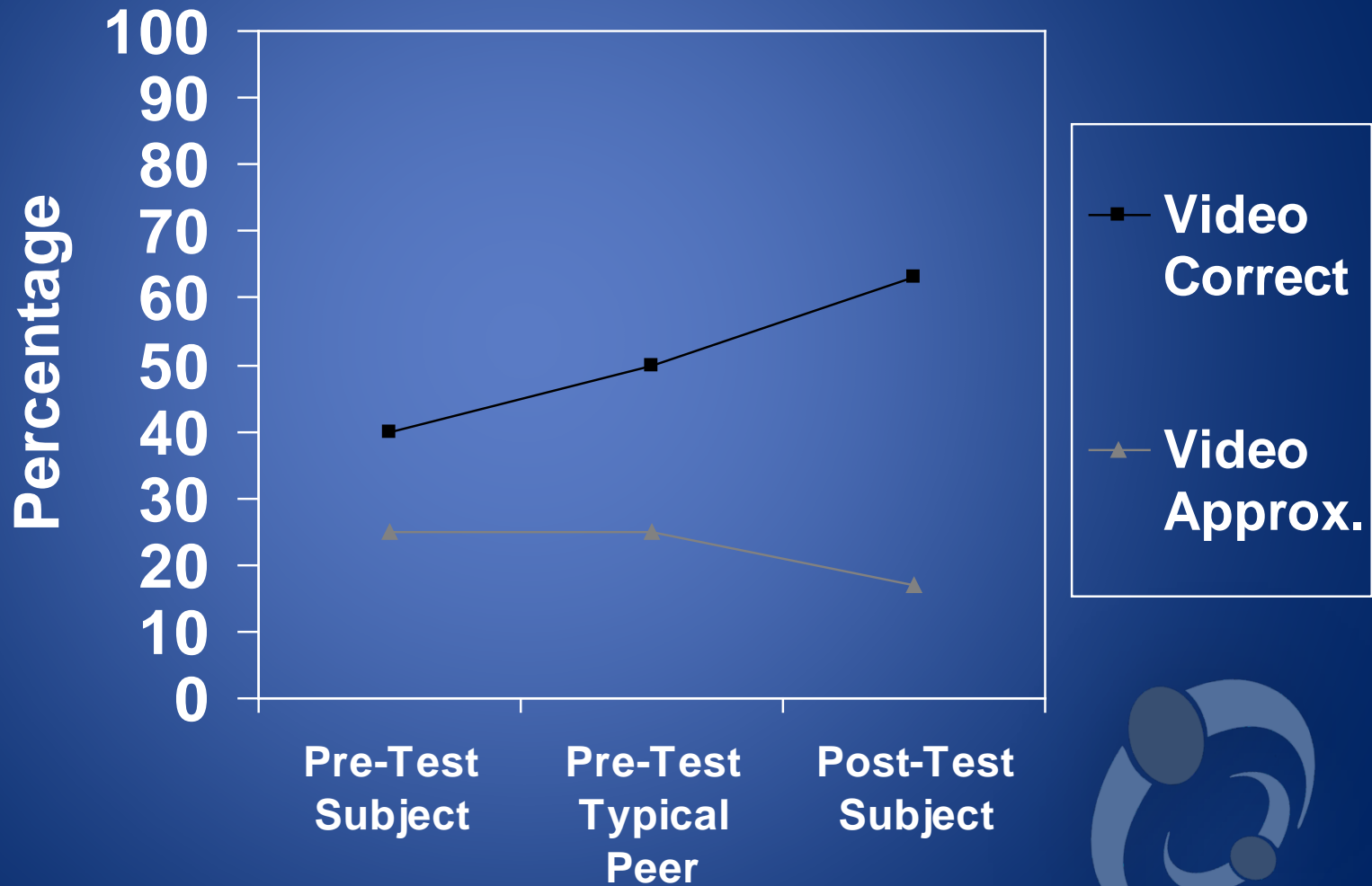
Post-Test: Subject



# Results

Pre-Test: Subject & Typical Peer

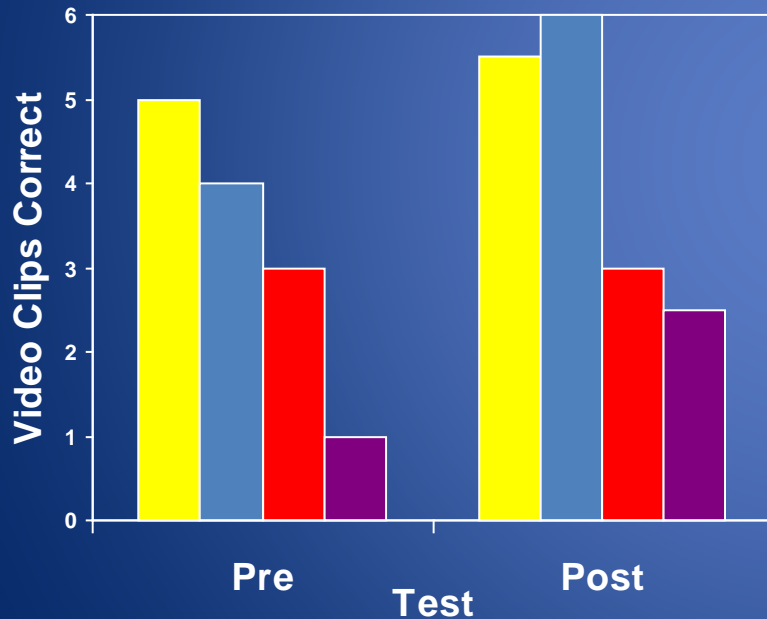
Post-Test: Subject



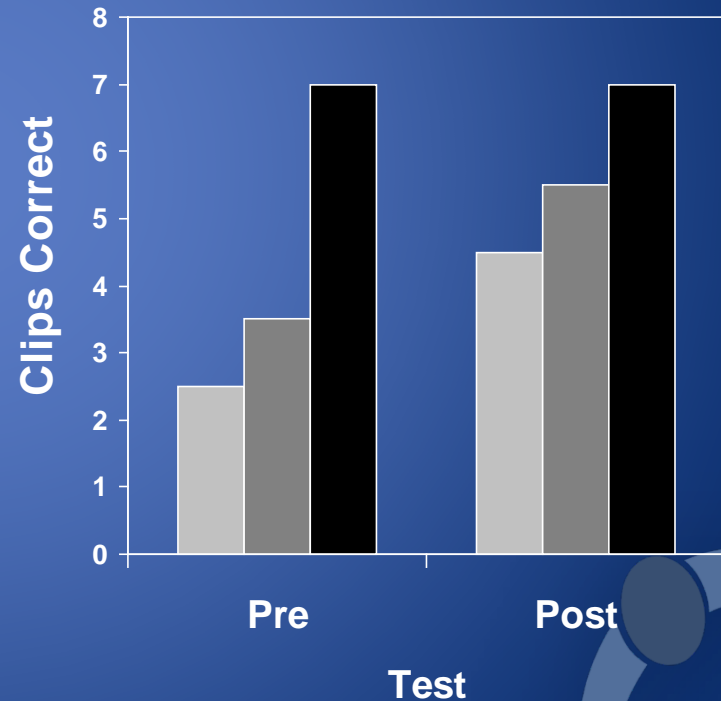
# Results

## By Emotion Group and Level

Emotion Video Tests  
(by emotion group)



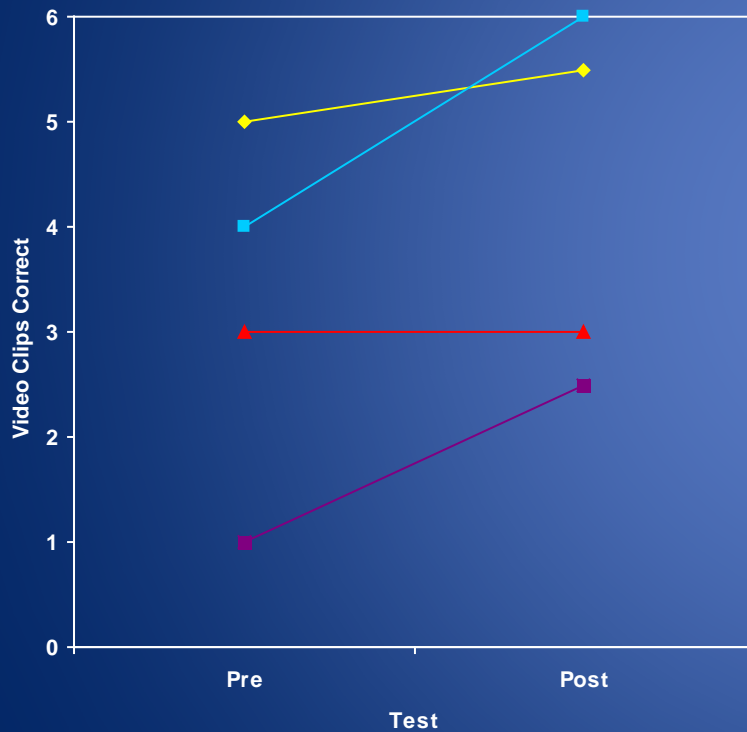
Emotion Video Tests  
(by level)



# Results

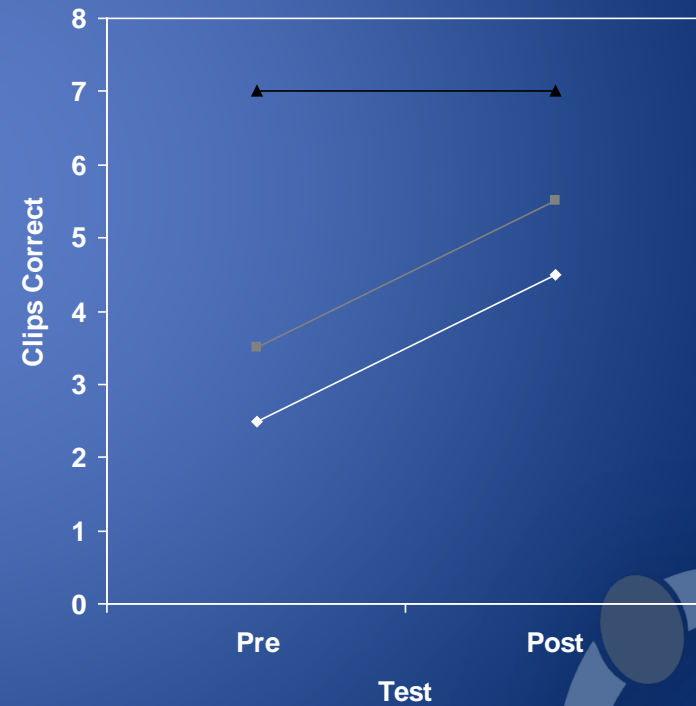
## By Emotion Group and Level

Emotion Video Tests (by emotion group)



◆ Happy Group      ■ Sad Group  
▲ Angry Group      ■ Afraid Group

Emotion Video Tests (by level)



◆ Low      ■ Medium  
▲ High

## Discussion

### Results & Social Validity

#### 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 base line 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.



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