Treating Problem Behavior
A Focus on Strengthening Socially Important Behavior of Persons with Autism

Gregory P. Hanley Ph.D., BCBA-D

For more information go to:
www.practicalfunctionalassessment.com

Seminar for Clinical Behavior Analysis
Louisville, Kentucky August, 2017
Persons diagnosed with **Autism**

often engage in repetitive acts

that appear to serve no function
These acts are collectively referred to as **stereotypy**

due to the formal similarity of the acts

and the periodicity with which they are emitted
<table>
<thead>
<tr>
<th>Body parts</th>
<th>Types of movements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face</td>
<td>Grimacing, lips, tongue movements, opening the mouth</td>
</tr>
<tr>
<td>Head, trunk,</td>
<td>Head tilting, shaking, nodding; body rocking, bending, scrunching; arching the back; shrugging the shoulders</td>
</tr>
<tr>
<td>shoulders</td>
<td>Arm/leg Flapping, crossing the arms on the chest, stamping the feet</td>
</tr>
<tr>
<td>Hand/finger</td>
<td>Shaking, tapping, waving, clapping, opening-closing, twirling the hand or fingers</td>
</tr>
<tr>
<td>Hand/finger with</td>
<td>Shaking, tapping, twirling an object</td>
</tr>
<tr>
<td>object</td>
<td>Gait Pacing, jumping, running, skipping, spinning</td>
</tr>
<tr>
<td>Self-directed</td>
<td>Covering the ears; mouthing; smelling; rubbing the eyes; tapping the chin; banging the arms against the body; slapping self or an object or surface; touching genitals</td>
</tr>
<tr>
<td>Visual</td>
<td>Staring at an object or the fingers ‘out of the corner of the eyes’</td>
</tr>
</tbody>
</table>
Motor stereotypies in children with autism and other developmental disorders

SYLVIE GOLDMAN PhD, CUILING WANG PhD, MIRAN W SALGADO MD, PAUL E GREENE MD, MIMI KIM PhD, ISABELLE RAPIN PhD

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HFA = High functioning autism
LFA = Low functioning autism
DLD = Developmental language disorder
NALIQ = Non-autistic low IQ
Stereotypy can serve different functions

Table 5
Functional Analysis Outcome Summary

<table>
<thead>
<tr>
<th>Topography</th>
<th>Undifferentiated</th>
<th>Differentiated</th>
<th>Escape</th>
<th>Attention</th>
<th>Tangible</th>
<th>Automatic</th>
<th>Multiple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-injury</td>
<td>13</td>
<td>232</td>
<td>65</td>
<td>52</td>
<td>28</td>
<td>55</td>
<td>15</td>
</tr>
<tr>
<td>Aggression</td>
<td>2</td>
<td>30</td>
<td>24</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Property destruction</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pica</td>
<td>0</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Disruption</td>
<td>0</td>
<td>16</td>
<td>11</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Vocalizations</td>
<td>1</td>
<td>14</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Noncompliance</td>
<td>0</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Elongation</td>
<td>0</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Stereotypy</td>
<td>1</td>
<td>30</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>Totals</td>
<td>22</td>
<td>514</td>
<td>176</td>
<td>130</td>
<td>52</td>
<td>81</td>
<td>75</td>
</tr>
<tr>
<td>Percentage of sample</td>
<td>4.1</td>
<td>95.9</td>
<td>34.2</td>
<td>25.3</td>
<td>10.1</td>
<td>15.8</td>
<td>14.6</td>
</tr>
</tbody>
</table>

From Hanley, Iwata, and McCord, JABA, 2003, p. 166
But, stereotypy is usually maintained by sensory (automatic) reinforcement
When is Stereotypy a Problem?

....when it is exhibited with *impairing frequency*
When is Stereotypy a Problem?

...when it is exhibited with *impairing frequency*

when it interferes with attempts to teach skills or concepts
When is Stereotypy a Problem?

....when it is exhibited with *impairing frequency*

when it interferes with social interactions
When is Stereotypy a Problem?

...when it is exhibited with *impairing frequency*

when the prohibition of stereotypy results in more serious problem behavior

(DeLeon et al., 2011)
Achieving desirable developmental outcomes with regard to stereotypy can be achieved through carefully engineered and balanced support.
TREATING STEREOTYPY IN ADOLESCENTS DIAGNOSED WITH AUTISM BY REFINING THE TACTIC OF “USING STEREOTYPY AS REINFORCEMENT”

Jacqueline N. Potter
NEW ENGLAND CENTER FOR CHILDREN AND WESTERN NEW ENGLAND UNIVERSITY

Gregory P. Hanley
WESTERN NEW ENGLAND UNIVERSITY

Matotopa Augustine
NEW ENGLAND CENTER FOR CHILDREN AND WESTERN NEW ENGLAND UNIVERSITY

AND

Casey J. Clay and Meredith C. Phelps
NEW ENGLAND CENTER FOR CHILDREN
Some applications of the model

• Three teenagers
  – Jon, Patrick, & Edward

• Stereotypy
  – Hand flapping, finger tapping or flicking, body rocking, mouthing, eye pressing, ear holding
Conclusion: Stereotypy persisted or worsened

Why?

- Interpretation of functional properties of stereotypy was incorrect
- Only saw early stage of extinction
- Are not removing all reinforcers (there were integrity breaches)
- Motivation to produce automatic reinforcement was high with no other way to produce similar reinforcers
Critical Step: Add differential reinforcement to strengthen some desirable behavior

See these studies for the successful treatment of stereotypy via differential reinforcement

Charlop, Kurtz, & Casey (1990) *JABA*

Hanley, Iwata, Thompson, & Lindberg (2000) *JABA*

Wolery, Kirk, & Gast (1985) *JADD*
The treatment –

activities

prompting (teaching)

blocking while teaching

earned access to stereotypy

can then be used to

teach more complex play skills
Some questions

Is this a humane treatment?

Are staff willing to implement these treatments?

Does the person with stereotypy like or loathe this treatment?
### Questions and Results of the Social Validity Questionnaire

<table>
<thead>
<tr>
<th>Questions</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you think that the treatment that involved prompting engagement,</td>
<td>7.0</td>
</tr>
<tr>
<td>blocking stereotypy, and differentially reinforcing engagement with 30 s</td>
<td></td>
</tr>
<tr>
<td>access to the participant’s own stereotypy was acceptable?</td>
<td></td>
</tr>
<tr>
<td>2. Do you think that the amount of behavior change was acceptable and</td>
<td>6.6 (6 - 7)</td>
</tr>
<tr>
<td>sufficient?</td>
<td></td>
</tr>
<tr>
<td>3. I feel that the overall goals of this treatment were acceptable,</td>
<td>6.6 (5 - 7)</td>
</tr>
<tr>
<td>appropriate and important for the individual.</td>
<td></td>
</tr>
<tr>
<td>4. I would recommend this treatment package to other therapists/providers</td>
<td>6.8 (6 - 7)</td>
</tr>
<tr>
<td>that are attempting to decrease motor stereotypy and increase age-</td>
<td></td>
</tr>
<tr>
<td>appropriate play skills.</td>
<td></td>
</tr>
</tbody>
</table>
Similar inquiry, different respondent:
Which treatment did each teenager prefer?

Toward Effective and Preferred Programming:
A Case for the Objective Measurement of Social Validity with Recipients of Behavior-Change Programs
Gregory P. Hanley, Ph.D., BCBA-D, Western New England College

Volume 3 Number 1
Spring 2010
Trials

Cumulative # of Selections

No Differential Consequences for Selections

(Diagram showing cumulative number of selections across different trials and sessions.)

Trials

(Sessions)
Blocking Only

Activities Only

Activities, Blocking, and Contingent Access to Stereotypy

Initial Links

Terminal Links

Contingency:

FR-1

Pink Card

Light Blue Card

Royal Blue Card
Trials

Cumulative # of Selections

No Differential Consequences for Selections

Differential Consequences for Selections

No Differential Consequences for Selections

Link Colors
- Pink: Blocking only
- Light Blue: Activities only
- Royal Blue: Tx Package

Correlated Treatments


Jono

(Sessions)

Trials
Trials
Cumulative # of Selections

No Differential Consequences for Selections

Differential Consequences for Selections

No Differential Consequences for Selections

Patrick

Link Colors
- Pink: Blocking only
- Yellow: Activities only
- Green: Tx Package

Correlated Treatments
Trials

12 24 36 48 60 72 84 96 108 120 132 144 156 168

Cumulative # of Selections

No Differential Consequences for Selections

Differential Consequences for Selections

No Differential Consequences for Selections

Link Colors

Green  Blocking Only
Orange  Activities Only
Blue    Tx Package

Edward

Cumulative # of Selections


(Sessions)

Trials
Results Summary

No one preferred blocking only

No one avoided the treatment with all three components

Two of three preferred the treatment with all three components
Why a preference for this treatment?

Preference for contingencies?
Some Take-Home Points

Don’t assume function

Test for sensitivity to social reinforcers first; see:
Some Take-Home Points

It is important to recognize the necessity and insufficiency of blocking as a treatment for stereotypy.
Some Take-Home Points

Immediate treatment goal is not elimination of stereotypy

More appropriate goal is having it occur in acceptable places and at acceptable times
Can we simply obtain stimulus control over stereotypy?

Yes – but the notion of a contingency is important here too.
EFFECTS OF MULTIPLE VERSUS CHAINED SCHEDULES ON STEREOTYPY AND ITEM ENGAGEMENT

Jessica D. Slaton
WESTERN NEW ENGLAND UNIVERSITY AND NASHOBA LEARNING GROUP

AND

Gregory P. Hanley
WESTERN NEW ENGLAND UNIVERSITY
Obtaining stimulus control of stereotypy

S-

Stereotypy is blocked

S+

Stereotypy is allowed
Multiple schedule

- $S^-$: stereotypy blocked
- $S^+$: stereotypy allowed

- Changeover between $S^-$ and $S^+$ components is *time-based*

Chained schedule

- $S^-$: stereotypy blocked
- $S^+$: stereotypy allowed

- Changeover between $S^-$ and $S^+$ components is *contingent on performance during $S^-$*
Sessions

Stereotypy per min
Sessions
Okay, but did either yield stimulus control over stereotypy?
Latency to stereotypy (\% time elapsed)

Latency to engagement (\% time elapsed)

Sessions

Chained

Multiple
Latency to stereotypy (% time elapsed)

Latency to engagement (% time elapsed)
Okay, but did either yield stimulus control over stereotypy?

Yes – The chained schedule.

The notion of a contingency is important here too.
Do children prefer time-based alternation (multiple schedules) or performance-based alternation (chained schedules)?
These children preferred performance-based alternation (chained schedules)
When treating stereotypy are we missing some important opportunities?

Can we begin to address the other core deficits of autism (language and social) while addressing stereotypy?

Can we begin to allow the child more control over where and when to engage in stereotypy?

Can we make the treatment more flexible so it fits into everyday life a little better?

I think we can.
When treating stereotypy are we missing some important opportunities?

Can we begin to address the other core deficits of autism (language and social) while addressing stereotypy?

Can we begin to allow the child more control over where and when to engage in stereotypy?

Can we make the treatment more flexible so it fits into everyday life a little better?

I think we can.
New Alternative: Skill-Based Treatment

Permission based model in which communication, toleration, and contextually appropriate behaviors are strengthened

(adapted from Hanley, Jin, Vanselow, & Hanratty, JABA, 2014)

1. Teach child to request access to stereotypy
   (via blocking and contingent access to stereotypy)

2. Teach child to tolerate denials of mands for stereotypy (via blocking and contingent, intermittent, and unpredictable access to stereotypy)

3. Teach child to engage in contextually relevant behavior
   (via prompting, blocking and contingent, intermittent, and unpredictable access to stereotypy)
Slaton & Hanley (2016)

- Contingent vs. noncontingent access

S- Stereotypy is blocked
S+ Stereotypy is allowed

contingent: performance occurs
noncontingent: time elapses
Slaton & Hanley (2016)

- What about permission-based access?

S-  
Stereotypy is blocked

S+  
Stereotypy is allowed

mand for stereotypy

no  yes
Hanley, Jin, Vanselow, & Hanratty (2014)

- Skill-based treatment for socially-mediated PB
Hanley, Jin, Vanselow, & Hanratty (2014)

• Skill-based treatment for socially-mediated PB
Hanley, Jin, Vanselow, & Hanratty (2014)

• Skill-based treatment for socially-mediated PB

Diagram:
- Functional communication request (FCR)
- Granted
- Denied
- Tolerance response (TR)
- Variable amount of work/play
- Reinforcement
- Compliance

Percentages:
- 20%
- 60%
The current study (unpublished)

- Combination of both treatment packages

**S-**
- **Mand for stereotypy**
- **Denied**
- **Tolerance response**
- **Variable work/play**

**S+**
- **Comp.**
- **Stereotypy is allowed**

Stereotypy blocked

15 – 45 seconds
## Participants

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Diagnosis</th>
<th>Communication</th>
<th>Work tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant</td>
<td>7</td>
<td>Autism</td>
<td>1-2 word phrases</td>
<td>Numbers, letters, sight words, pictures, matching</td>
</tr>
<tr>
<td>Milo</td>
<td>12</td>
<td>Autism</td>
<td>No phrases</td>
<td>Match and identify objects, pictures, numbers, letters; short ADL tasks</td>
</tr>
<tr>
<td>Marco</td>
<td>21</td>
<td>Autism</td>
<td>1-3 word phrases</td>
<td>Leisure and time management on iPad</td>
</tr>
</tbody>
</table>
### Participants: stereotypy topographies

<table>
<thead>
<tr>
<th>Grant</th>
<th>Milo</th>
<th>Marco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand flapping</td>
<td>Hand flapping</td>
<td>Pacing or galloping</td>
</tr>
<tr>
<td>Finger wiggling</td>
<td>Tapping on teeth</td>
<td>Jumping</td>
</tr>
<tr>
<td>Object flapping</td>
<td>Rubbing or poking face</td>
<td>Tapping body, furniture</td>
</tr>
<tr>
<td>Clapping</td>
<td>Finger play</td>
<td>Hair twirling</td>
</tr>
<tr>
<td>Holding objects to eyes and rotating</td>
<td>Shaking objects</td>
<td>Knuckle cracking</td>
</tr>
<tr>
<td></td>
<td>Tapping work materials</td>
<td></td>
</tr>
</tbody>
</table>
Instructional Baseline Tasks

- Match pictures in an array of 6
- Match letters in an array of 6
- Match numbers in an array of 6
- Identify (touch) pictures in an array of 6
- Sort objects in an array of 3
- Unpack backpack
- Put on shirt (over his current shirt)
FCT

- 10 trial sessions
- Simple FCR: “play please”
- Complex FCR: “Can I play please?”
- Immediate vocal model, faded within session
- All FCRs were immediately granted
- Criteria: 3 consecutive sessions with optimal FCRs and stereotypy at 5% or less during S-
Tolerance Response Training

- 10 trial sessions
- FCR granted on 4 trials, denied on 6 trials
- Tolerance response following denial: “Okay”
- Immediate vocal model, faded within session
- Criteria: 3 consecutive sessions with optimal FCRs and TRs, and stereotypy at 5% or less during S-
Response Chaining

- 10 trial sessions
- 2 trials: FCR produced the S+
- 2 trials: TR produced the S+
- 6 trials: compliance with work produced the S+
- Criteria: 3 consecutive sessions with 80% accuracy (or 100% for 2), optimal FCRs and TRs, and stereotypy at 5% or less during S-
<table>
<thead>
<tr>
<th>Level</th>
<th>Task</th>
<th>Demand range</th>
<th>Total demands</th>
<th>Field size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Match pictures</td>
<td>1 - 3</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>+Letters, numbers</td>
<td>1 - 3</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>(Same)</td>
<td>1 - 6</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>(Same)</td>
<td>1 - 10</td>
<td>27</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>(Same)</td>
<td>1 - 10</td>
<td>27</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>(Same)</td>
<td>1 - 10</td>
<td>27</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>(Same)</td>
<td>1 - 10</td>
<td>27</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>+Sort objects</td>
<td>1 - 10</td>
<td>27</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td>+ADLs</td>
<td>1 - 10</td>
<td>27</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>+Identify pictures</td>
<td>1 - 10</td>
<td>27</td>
<td>6</td>
</tr>
</tbody>
</table>
Discrimination index

• Proportion of stereotypy that occurred during S+
• Expressed as a decimal
  – 0.7 – 1.0 = discriminated responding
  – 0.5 = indiscriminate responding
Vocal stereotypy discrimination index

Sessions

Grant

Milo

Marco

S- duration (minutes)
The treatment that involved teaching a request for stereotypy, teaching an appropriate response to the denial of that request, and teaching the individual to complete an increasing number of demands before earning access to stereotypy was acceptable. 7

The amount of behavior change (i.e., the effects of treatment) was acceptable or sufficient. 6

The overall goals of this treatment were acceptable, appropriate, and important for the individual. 7

I would recommend this treatment package to other therapists or providers who are attempting to decrease stereotypy and increase appropriate engagement. 7
Next Step

Evaluate generality of the skill-based treatment in different contexts and when applied under longer periods by relevant teachers and caregivers.

Evaluate treatment when applied to other “there’s a better time and place for that” behaviors.

- Vocal Stereotypy
- Hand mouthing
- Scripting
- Masturbation
- Incessant, interactive, & imaginative role play
Final Take-Home Points

Treatment for stereotypy can (should?) be....

- function-based

- comprehensive

- involve a strong, intermittent, and unpredictable contingency to inhibit stereotypy and do something else contextually appropriate .... in order to engage in stereotypy
Why do “lifestyles” dictated by problem behavior persist for families of children with autism?
Restrictive lifestyles persist partly because problem behavior of children with autism is modified medicated mollified micro-analyzed remedied apart from skill development
<table>
<thead>
<tr>
<th>Domain</th>
<th>Goal</th>
<th>Objective</th>
<th>Teaching Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Behavior</td>
<td>Decrease SIB by....</td>
<td>The learner will...</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Decrease Aggression by....</td>
<td>The learner will...</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Decrease Elopement by....</td>
<td>The learner will...</td>
<td>C</td>
</tr>
<tr>
<td>Stereotypy</td>
<td>Decrease motor stereotypy by....</td>
<td>The learner will...</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>Decrease vocal stereotypy by....</td>
<td>The learner will...</td>
<td>E</td>
</tr>
<tr>
<td>Expressive Language</td>
<td>Increase independent mands for preferred items by....</td>
<td>The learner will...</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>Increase independent mands for adult attention by....</td>
<td>The learner will...</td>
<td>G</td>
</tr>
<tr>
<td></td>
<td>Increase independent mands for breaks by....</td>
<td>The learner will...</td>
<td>H</td>
</tr>
<tr>
<td></td>
<td>Strengthen tact for.... by...</td>
<td>The learner will...</td>
<td>I</td>
</tr>
<tr>
<td>Receptive Language</td>
<td>Build concept classes (e.g., colors, letters, ...) by strengthening pointing, matching by...</td>
<td>The learner will...</td>
<td>J</td>
</tr>
<tr>
<td>Compliance</td>
<td>Increase compliance with two step instructions by....</td>
<td>The learner will...</td>
<td>K</td>
</tr>
<tr>
<td>Social/Emotional</td>
<td>Increase tolerance for delays and denials of request by....</td>
<td>The learner will...</td>
<td>L</td>
</tr>
<tr>
<td>Play/Leisure Skills</td>
<td>Increase functional engagement with toys in absence of adult by....</td>
<td>The learner will...</td>
<td>N</td>
</tr>
<tr>
<td>Self Help Skills</td>
<td>Increase cooperation/independent tooth brushing, hand washing, .... by.....</td>
<td>The learner will...</td>
<td>O</td>
</tr>
</tbody>
</table>
Two Most Important Commitments for Successfully Treating Severe Problem Behavior

1. A Focus on Strengthening Skills of Communication, Toleration, and Compliance

2. Reliance on personalized and synthesized reinforcement contingencies
## Practical Functional Assessment and Treatment Model

<table>
<thead>
<tr>
<th>Steps</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Interview</td>
</tr>
<tr>
<td>2</td>
<td>Functional Analysis</td>
</tr>
<tr>
<td>3</td>
<td>Simple Functional Communication Training</td>
</tr>
<tr>
<td>4</td>
<td>Complex Functional Communication Training</td>
</tr>
<tr>
<td>5</td>
<td>Tolerance Response Training</td>
</tr>
<tr>
<td>6</td>
<td>Easy Response Chaining</td>
</tr>
<tr>
<td>7</td>
<td>Difficult Response Chaining</td>
</tr>
<tr>
<td>8</td>
<td>Treatment Extension / Parent or Staff Training</td>
</tr>
</tbody>
</table>
Practical Functional Assessment and Treatment Model

- Process has led to comprehensive treatments with large, generalized effects

- Treatment relies on strengthening:
  functional communication
delay/denial toleration
compliance

With
Intermittent & unpredictable reinforcement
Treatment Analysis

Zeke

14-year old boy
diagnosed with Autism

Engaged in Severe SIB and Aggression

1:1 in Specialized School

Problem behavior no longer yields the reinforcers (escape to child-directed play/stereotypy and teacher attention)

A simple response (button press: “My way please”) is prompted and reinforced with (escape to child-directed play & teacher attention)
Treatment Analysis

Zeke

14-year old boy
diagnosed with Autism

Engaged in Severe SIB and Aggression

1:1 in Specialized School

A more interactional response (shoulder tap, wait for teacher acknowledgement, two-button press: May I have / My way please”) is prompted and reinforced
TREATMENT ANALYSIS

Zeke
- 14-year-old boy
diagnosed with Autism

Engaged in Severe SIB and Aggression

1:1 in Specialized School

BL FCT + EXT

Denial and Delay Tolerance Training

Now, FCRs are reinforced half the time. The other half, the teacher denies the bid (e.g., says’s no, do your work without me, please)

Responses to disappointment are prompted and reinforced:
(Take a breath and nodding yes)

Cues of disappointment, Delays to reinforcement, and unpredictable outcomes have now been introduced!
Now, FCRs are reinforced 1/3 of the time.

TRs are reinforced 1/3 of the time.

And compliance with progressively longer and more challenging instructions is reinforced.
Treatment Analysis

Zeke, a 14-year-old boy diagnosed with Autism, engaged in Severe SIB and Aggression. He was provided with 1:1 support in a Specialized School.
What is the treatment????

Intermittent and unpredictable reinforcement of life skills:

- Functional Communication
- Delay/denial toleration
- Compliance
Reinforcement is: Function-based Differential Intermittent Variable in duration

Response requirement is: Variable Unpredictable

- Complex FCR
  - “No” → Tolerance response → Sr
  - Sr
  - “No” → Tolerance response → Instruction → Compliance → Sr
  - “No” → Tolerance response → Instruction → C → Sr
  - “No” → Tolerance response → Instruction → Compliance → Sr
  - Sr
  - “No” → Tolerance response → Instruction → Compliance → Sr
  - Sr
Treatment Implementation

*Materials not needed:
- Laminate
- Laminating machine
- Glue guns
- Vis a vis markers
- Velcro
- Tokens
- Token boards
- Timers
- Stickers
- Candies
- Anything that was not already in the child’s environment!

1. Spin it!
2. Keep it to yourself
3. Require that behavior next time
App called “Names in a Hat”
App called “Roundom”
Treatment Analysis

Gail

3-year old girl
diagnosed with Autism

Engaged in extended meltdowns with aggression

Process in Clinic and home with mother implementing

Meltdowns and aggression

“Play with me”

“Excuse me,” waits for acknowledgement from parent, then says, “Will you play with me, please” with appropriate tone and volume

Saying, “okay” while glancing at parent who just said “No,” Wait,” “Hold on,” or “in a minute”
Treatment Analysis

Gail

3-year old girl diagnosed with Autism

Engaged in extended meltdowns with aggression

Process in Clinic and home with mother implementing

Reinforcement: Time with Mom’s undivided attention and preferred toys

Compliance: Doing whatever Mom asked her to do quickly and completely

Calendar Days (2012-2013)
Treatment Analysis

Dale

11-year old boy
diagnosed with Autism

Engaged in severe aggression

Process in Clinic with analyst and parents and home with parents implementing
11-year-old boy diagnosed with Autism

Process in Clinic with analyst and parents and home implementing

Sessions

Calendar Days (2013)

Tolerance Response per min

0.0
0.5
1.0
1.5
2.0

Reinforcement (%)

0
25
50
75
100

Dale

BL FCT + EXT

Simple FCR per min

0
1
2
3
4

Complex FCR per min

0
1
2
3
4

Problem Behavior per min

0
2
4
6
8
10
12
14
16
18
20

Denial BL Denial and Delay Tolerance Training

Treatment Extension

Dale

Analysis
Treatment Analysis

Dale

11-year old boy diagnosed with Autism

Engaged in severe aggression

Process in Clinic with analyst and parents and home with parents implementing
Treatment Analysis

Dale

11-year old boy diagnosed with Autism

Engaged in severe aggression

Process in Clinic with analyst and parents and home with parents implementing
Treatment Analysis

Dale

11-year old boy diagnosed with Autism

Engaged in severe aggression

Process in Clinic with analyst and parents with parents implementing
Treatment Analysis

Dale

11-year old boy diagnosed with Autism

Engaged in severe aggression

Process in Clinic with analyst and parents and home with parents implementing

**PROGRESSIVE INCREASE IN COMPLEXITY OF INSTRUCTIONS**

<table>
<thead>
<tr>
<th></th>
<th>Simple motor movements</th>
<th>Walk over here, stand up, sit down, clap your hands, touch your (shoulder, head, toes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Simple academics</td>
<td>Draw a circle, write your name, copy what I write</td>
</tr>
<tr>
<td>3</td>
<td>Homework/Task preparation</td>
<td>Unzip your backpack, take out the book, erase the board come to the board, put these books on the book shelf</td>
</tr>
<tr>
<td>4</td>
<td>Complex academic: Reading skills</td>
<td>Read this paragraph, Answer this question….; Sound out the words</td>
</tr>
</tbody>
</table>
Treatment Analysis

Dale

11-year old boy diagnosed with Autism

Engaged in severe aggression

Process in Clinic with analyst and parents and home with parents implementing
Treatment Analysis

Dale

11-year old boy diagnosed with Autism

Engaged in severe aggression

Process in Clinic with analyst and parents and home with parents implementing
Treatment Analysis

Dale

11-year old boy diagnosed with Autism

Engaged in severe aggression

Process in Clinic with analyst and parents and home with parents implementing

MANNER IN WHICH TREATMENT WAS EXTENDED TO FAMILY AND HOME

- Three analysts alternated while parents observed the sessions
- Following training, the father was introduced after the analyst presented the evocative trial and halfway through the session; the mother was present in the session room
- The mother implemented treatment in the session room
- Parents varied the type and amount of instructions during the delay period
- Parents implemented treatment in the home while novel instructions were introduced
Take a moment to reflect on this particular treatment process.

How is it similar to and different than the treatment you implement?

Discuss with your neighbor.
<table>
<thead>
<tr>
<th>Steps</th>
<th># of Visits (1 hr each)</th>
<th>Cost (in US dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
<td>Mean</td>
</tr>
<tr>
<td>1* Interview</td>
<td>--</td>
<td>1</td>
</tr>
<tr>
<td>2* Functional Analysis</td>
<td>1 - 4</td>
<td>2.3</td>
</tr>
<tr>
<td>3 Functional Communication Training</td>
<td>1 - 3</td>
<td>2</td>
</tr>
<tr>
<td>4 Complex FCT</td>
<td>1 - 4</td>
<td>2.4</td>
</tr>
<tr>
<td>5 Tolerance Response Training</td>
<td>2 - 7</td>
<td>4.6</td>
</tr>
<tr>
<td>6 Easy Response Chaining</td>
<td>1 - 5</td>
<td>2.6</td>
</tr>
<tr>
<td>7* Difficult Response Chaining</td>
<td>2 - 11</td>
<td>5.1</td>
</tr>
<tr>
<td>8* Treatment Extension</td>
<td>4 - 9</td>
<td>7.3</td>
</tr>
<tr>
<td>Totals:</td>
<td>23 - 32</td>
<td>27</td>
</tr>
</tbody>
</table>

Supervision meetings: 16 - 28 20 1000 - 1750 1250
Report writing / planning: -- 4 -- 500

Grand Totals: 6225 - 8650 7,217
## Cost Assessment

<table>
<thead>
<tr>
<th>Steps</th>
<th># of Visits (1 hr each)</th>
<th>Cost (in US dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
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</tr>
<tr>
<td>1* Interview</td>
<td>-- 1</td>
<td></td>
</tr>
<tr>
<td>2* Functional Analysis</td>
<td>1 - 4 2.3</td>
<td></td>
</tr>
<tr>
<td>3 Functional Communication</td>
<td>1 - 3 2</td>
<td></td>
</tr>
<tr>
<td>4 Complex FCT</td>
<td>1 - 4 2.4</td>
<td></td>
</tr>
<tr>
<td>5 Tolerance Response Training</td>
<td>2 - 7 4.6</td>
<td></td>
</tr>
<tr>
<td>6 Easy Response Chaining</td>
<td>1 - 5 2.6</td>
<td></td>
</tr>
<tr>
<td>7* Difficult Response Chaining</td>
<td>2 - 11 5.1</td>
<td></td>
</tr>
<tr>
<td>8* Treatment Extension</td>
<td>4 - 9 7.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Totals: 23 - 32 27</td>
<td></td>
</tr>
</tbody>
</table>

| Supervision meetings:        | 16 - 28 20 |      | 1000 - 1750| 1250     |
| Report writing / planning:   | -- 4      |      | -- 500     |          |

**Grand Totals:** 6225 - 8650 7,217
Process has led to **socially-validated** outcomes

<table>
<thead>
<tr>
<th>Questions</th>
<th>Ratings</th>
<th></th>
<th></th>
<th></th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Acceptability of assessment procedures</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>2. Acceptability of treatment packages</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>3. Satisfaction with improvement in problem behavior</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>6.7</td>
</tr>
<tr>
<td>4. Helpfulness of consultation</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

*Note. 7=highly acceptable, highly satisfied, or very helpful  
1=not acceptable, not satisfied, or not helpful*
## Personalized Social validity Data

*Parents' Comfort Level of Presenting the Evocative Situation*

<table>
<thead>
<tr>
<th>Questions</th>
<th>Comfort Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-treatment</td>
</tr>
<tr>
<td><strong>Gail</strong></td>
<td></td>
</tr>
<tr>
<td>1. Taking away toys</td>
<td>1</td>
</tr>
<tr>
<td>2. Telling child &quot;no&quot; when they ask for something</td>
<td>3</td>
</tr>
<tr>
<td>3. Giving instructions</td>
<td>5</td>
</tr>
<tr>
<td><strong>Dale</strong></td>
<td></td>
</tr>
<tr>
<td>1. Interrupting child's preferred activity and telling them to do homework or other non-preferred activities</td>
<td>4</td>
</tr>
<tr>
<td><strong>Bob</strong></td>
<td></td>
</tr>
<tr>
<td>1. Taking away DS or iPad at meal times</td>
<td>3</td>
</tr>
<tr>
<td>2. Taking away DS or iPad on a transition</td>
<td>3</td>
</tr>
<tr>
<td>3. Interrupting or correcting math work</td>
<td>3</td>
</tr>
</tbody>
</table>

*Note. 7=very comfortable 1=not comfortable.*
Some open-ended responses from the Social Acceptability Questionnaire

Please comment:

I found strategies in how well she did after the analyses of this program. I was amazed in how I could use these techniques and feel comfortable about it.

1. Please provide any additional comments for our team.

I would like to thank Nick especially for all the work and studies done on my child. You were wonderful with her. This is a great program. It taught me how better deal with my daughter skills of communication. I too have developed patience and how to communicate with her without the guilt down.
3. Rate the extent to which you are satisfied with the amount of improvement seen in [ ]'s meltdowns.

1 2 3 4 5 6 7
Not Satisfied  Highly Satisfied

Please comment:

Highly satisfied is an understatement! He has come a long, long way in such a short time.

11. Please provide any additional comments for our team. [ ] and I are very happy with how this whole process took place. We both feel our home life and [ ]'s quality of life is getting better and better. This was one of the best summers we had with him behavior wise, and best summers overall because of less behaviors. We actually took day trips to CT Science Museum, Boston Science Museum and Hampton Beach with NO issues of bad behavior. We feel that without this great program, we wouldn't have even attempted these trips knowing what the usual outcome would have been.
A Unique Aspect of our Approach

Our function-based treatments are always skill-based

Functional Communication Training: A Review and Practical Guide
Jeffrey H. Tiger, Louisiana State University. Gregory P. Hanley, Western New England College and Jennifer Bruzek, Vanderbilt University

ABSTRACT
Functional communication training (FCT) is one of the most common and effective interventions for severe behavior problems. Since the initial description of FCT by Carr and Durand (1985), various aspects of the FCT treatment process have been evaluated, and from this research, best practices have emerged. This manuscript provides a review of these practices as they arise during the development of effective FCT interventions. Descriptors: Behavior disorders, differential reinforcement of alternative behavior, functional communication training, function-based treatment

Published in Behavior Analysis in Practice in 2008 (available for free at PubMed Central)
5 Critical Aspects of FCT

1. Start simply and with a novel and omnibus mand

2. Increase interactional nature of mand and make more developmentally advanced

3. Use shaping as necessary
Shape the complex response
5 Critical Aspects of FCT

1. Start simply and with a novel and omnibus mand

2. Increase interactional nature of mand and make more developmentally advanced

3. Use shaping as necessary

4. Prompt response immediately and after problem behavior
5 Critical Aspects of FCT

1. Start simply and with a novel and omnibus mand

2. Increase interactional nature of mand and make more developmentally advanced

3. Use shaping as necessary

4. Prompt response immediately and after problem behavior

5. Differentiate the omnibus mand at some point
Differentiate the complex response
Come up with at least one question relevant to implementing Functional Communication Training (FCT)
5 Critical Aspects of Delay/Denial Tolerance Training

1. Always provide **immediate sr for some FCRs**

2. Teach an appropriate response to **multiple cues** of delay, denial, or disappointment

3. Progressively increase the average **amount of behavior** (not just time) required to terminate the delay
With only Progressive Reinforcement Delay:

As delay increases, FCR weakens & probability of PB increases
Time-based vs. Contingency-based Progressive Delay
(Lead Author: Mahshid Ghaemmaghami)

Sessions

0 2 4 6 8 10
No Delay
Terminal Delay (no EXT)
No Delay
TBPD (with EXT)
No Delay
CBPD (with EXT)

Problem Behavior per min

No Delay
Terminal Delay (no EXT)
No Delay
TBPD (with EXT)
No Delay
CBPD (with EXT)

Alex

Responses per min

Ind TR
Ind FCR

0.0
0.6
1.2
1.8

Sessions

20 30 40
Time-based vs. Contingency-based Progressive Delay
(Lead Author: Mahshid Ghaemmaghami)
Time-based vs. Contingency-based Progressive Delay
(Lead Author: Mahshid Ghaemmaghami)
5 Critical Aspects of Delay/Denial Tolerance Training

1. Always provide immediate sr for some FCRs
2. Teach an appropriate response to multiple cues of delay, denial, or disappointment
3. Progressively increase the average amount of behavior (not just time) required to terminate the delay
4. Terminate the delay for various amounts of behavior (sometimes expect very little behavior sometimes request larger or more complex types of behavior during the delay)
5. Probably best to not signal how much behavior is required to terminate the delays
Preference for Delay Type

Predictable or Unpredictable

(Lead Author: Mahshid Ghaemmaghami)
5 Critical Aspects of Delay/Denial Tolerance Training

1. Always provide **immediate sr for some FCRs**

2. Teach an appropriate response to **multiple cues** of delay, denial, or disappointment

3. Progressively increase the average **amount of behavior** (not just time) required to terminate the delay

4. Terminate the delay for **various** amounts of behavior (sometimes expect very little behavior sometimes request larger or more complex types of behavior during the delay)

5. Probably **best to not signal** how much behavior is required to terminate the delays
Come up with at least one question relevant to implementing Delay/Denial Tolerance Training
Come up with at least one question relevant to implementing the function-based treatment as described.

Then, let’s talk logistics.
Let’s design a treatment process from interview results

Primary Mission:
1. Identify FCRS and how to teach them
2. Identify TRs and how to teach them
3. Identify what behaviors child should engage in during delays and denials and how to teach them
Let’s talk parent training....

See workbook for aide.
IISCA & Response
Class Analysis

Mike

4-year old boy

No formal Dx

Engaged in aggression

Process in clinic with analyst and mother and father implementing with toddler sister in room
**Treatment Analysis with Analyst Implementation**

**Mike**

**4-year old boy**

**No formal Dx**

**Engaged in aggression**

**Process in clinic with analyst and mother and father implementing with toddler sister in room**
Treatment Analysis with Parent Implementation

Mike

4-year old boy

No formal Dx

Engaged in aggression

Process in clinic with analyst and mother and father implementing with toddler sister in room
Parent Integrity Data

Mike

4-year old boy

No formal Dx

Engaged in aggression

Process in clinic with analyst and mother and father implementing with toddler sister in room

* Sister not present
IISCA

Jordan

3-year old boy
diagnosed with “SPD”

Engaged in severe aggression & meltdowns

Process in clinic with analyst and mother implementing
Response Class Analysis

Jordan

3-year old boy
diagnosed with “SPD”

Engaged in severe aggression & meltdowns

Process in clinic with analyst and mother implementing
**Treatment Analysis with Analyst Implementation**

**Jordan**

3-year old boy diagnosed with “SPD”

Engaged in severe aggression & meltdowns

Process in clinic with analyst and mother implementing
Treatment Analysis with Mother Implementation

Jordan

3-year old boy diagnosed with “SPD”

Engaged in severe aggression & meltdowns

Process in clinic with analyst and mother implementing
Let’s talk logistics

<table>
<thead>
<tr>
<th>Time required:</th>
<th>12-36 hours (mean 24 hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution of hours:</td>
<td>Flexible</td>
</tr>
<tr>
<td>5 min sessions / 1 hr visits / 3x per wk</td>
<td>about 2-3 mos total</td>
</tr>
<tr>
<td>5 min sessions / 4 hrs per day / 5x per wk</td>
<td>about 2 wks total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Implementation:</th>
<th>Can be Direct or a combination of Direct and Indirect services by BCBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCBA:</td>
<td>5 min sessions / 1 hr visits / 2x per wk</td>
</tr>
<tr>
<td>Para or RBT:</td>
<td>5 min sessions / 4 hrs per day / 5x per wk</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting:</th>
<th>Any, but choose one or two safe and convenient locations at start</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the meantime:</td>
<td>Business as usual or Safety Protocol</td>
</tr>
</tbody>
</table>
An important message

With Autism, there is a higher likelihood of problem behavior

Meltdowns
Aggression
Self-injury

References: Baghdadli, Pascal, Grisi, & Aussilloux, 2003; Horner et al., 2002; Kim et al., 2000; Murphy, Healy, & Leader, 2009; Thompson, 2009
freedom from these behaviors for persons with Autism and their caregivers is attainable
It is attainable for most

without drugs

without hospitalization

without harsh punishment

without candies, stickers, and token boards
It is attainable when children are taught skills* to help them navigate our complex social world

*Communication and toleration
It is attainable when the skills are maintained via unpredictable and intermittent reinforcement which is probably the same arrangement that maintained the various forms of problem behavior.
It is attainable

by first understanding* why the child is engaging in the problem behavior

understanding can be realized quickly, safely, and analytically
Interview-informed
Synthesized Contingency
Analysis
Two Most Important Commitments for Successfully Treating Severe Problem Behavior

1. A Focus on Strengthening Skills of Communication, Toleration, and Compliance

2. Reliance on personalized and synthesized reinforcement contingencies
IISCA: Interview-Informed Synthesized Contingency Analysis

1. Single

2. Individualized

3. Synthesized contingency

4. Reinforce precursors to *and* dangerous behavior

5. Test-matched

6. Rapid alternation of test and control conditions
IISCA: Interview-Informed Synthesized Contingency Analysis

1. Single

2. Individualized

3. Synthesized contingency

4. Reinforce precursors to *and* dangerous behavior

5. Test-matched

6. Rapid alternation of test and control conditions
Some Important Aspects of the Approach

Closed-ended indirect assessments (MAS, QABF, FAST) are never used in the process because they do not provide any information about personally unique or qualitative features of potentially influential variables.
Some Important Aspects of the Approach

Extensive descriptive assessments are never part of the process because they are: time-consuming and usually suggest invalid relations

St. Peter et al., 2005; Thompson & Iwata, 2007
Some Important Aspects of the IISCA

An open-ended interview is always part of the process

*Primary goals* are to identify:

a) co-occurring topographies of problem behavior
b) events/interactions that appear to routinely evoke problem behavior
c) interactions that follow problem behavior and are reported to stop it

*Interviews allow for discoveries* which can then be verified (or not) in the IISCA
Some Important Aspects of our Approach

We *synthesize* multiple contingencies into one test condition which contingencies and the specific materials and interactions are informed by the interview
**PAST: Single contingencies**

1. **Attention or toys** (social-positive reinforcement)
2. **Escape/avoidance** (social-negative reinforcement)
3. **Sensory/non-social** (automatic reinforcement)

**PRESENT: Synthesized (combined) contingencies**

1. **Attention and Toys**
2. **Escape to toys**
3. **Escape to toys and attention**
4. **Escape to automatic reinforcement**
5. **Compliance with mands**
6. **Escape to compliance with mands**
7. **Escape to access to rituals & preferred conversations**
8. **Etc.....**
Why synthesize?

Seems to emulate the ecology better
**Why synthesize?**

Isolated contingencies sometimes do not control behavior whereas synthesized contingencies do.

*From:*

Nature and Scope of Synthesis in Functional Analysis and Treatment of Problem Behavior

Slaton & Hanley (under review, *JABA*)

<table>
<thead>
<tr>
<th>Synthesized Contingency</th>
<th>First Author (Year)</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escape to mand compliance</td>
<td>Bowman (1997)</td>
<td>Ben, Jerry</td>
</tr>
<tr>
<td></td>
<td>Eluri (2016)</td>
<td>Pablo</td>
</tr>
<tr>
<td></td>
<td>Jessel (2016)</td>
<td>Allen, Mike, Jesse, Jian</td>
</tr>
<tr>
<td></td>
<td>Roscoe (2015)</td>
<td>Chris</td>
</tr>
<tr>
<td>Escape to previous activity</td>
<td>Adelinis (1999)</td>
<td>Rafflie</td>
</tr>
<tr>
<td></td>
<td>Fisher (1998)</td>
<td>Ike, Tina</td>
</tr>
<tr>
<td></td>
<td>Hanley (2014)</td>
<td>Bob</td>
</tr>
<tr>
<td></td>
<td>Hagopian (2007)</td>
<td>Perry, Maxwell, Kelly</td>
</tr>
<tr>
<td>Escape to rituals / stereotypy</td>
<td>Leon (2013)</td>
<td>Laura</td>
</tr>
<tr>
<td></td>
<td>Rispoli (2014)</td>
<td>Timmy, John, Diego</td>
</tr>
<tr>
<td></td>
<td>Jessel (2016)</td>
<td>Sam</td>
</tr>
<tr>
<td></td>
<td>Slaton (2017)</td>
<td>Chloe</td>
</tr>
<tr>
<td>Attention + tangibles</td>
<td>Brown (2000)</td>
<td>Jim</td>
</tr>
<tr>
<td></td>
<td>Ghaemmaghami (2016)</td>
<td>Jack, Nico</td>
</tr>
<tr>
<td></td>
<td>Hanley (2014)</td>
<td>Gail</td>
</tr>
<tr>
<td></td>
<td>Mann (2009)</td>
<td>Madison</td>
</tr>
<tr>
<td></td>
<td>Payne (2014)</td>
<td>Samantha</td>
</tr>
<tr>
<td></td>
<td>Santiago (2016)</td>
<td>Karen</td>
</tr>
<tr>
<td>Escape + tangibles</td>
<td>Fisher (2016)</td>
<td>Cameron</td>
</tr>
<tr>
<td></td>
<td>Jessel (2016)</td>
<td>Kristy, Jim, Carson, Chris, Mitch</td>
</tr>
<tr>
<td></td>
<td>Lambert (2017)</td>
<td>S-2</td>
</tr>
<tr>
<td></td>
<td>Lloyd (2015)</td>
<td>Abhi, Sid</td>
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<tr>
<td></td>
<td>Roscoe (2015)</td>
<td>Jim</td>
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<tr>
<td></td>
<td>Slaton (2017)</td>
<td>Riley, Dylan, Jeff, S-1 (no pseudonym given)</td>
</tr>
<tr>
<td></td>
<td>Strohmeier (2016)</td>
<td></td>
</tr>
<tr>
<td>Escape + attention</td>
<td>Mueller (2005)</td>
<td>Bob</td>
</tr>
<tr>
<td></td>
<td>Payne (2014)</td>
<td>Andrew</td>
</tr>
<tr>
<td></td>
<td>Sarno (2011)</td>
<td>Brandon, Franklin, J'Marcus</td>
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<td>Escape + attention + tangibles</td>
<td>Fisher (2016)</td>
<td>Alan, Allie, Sylvia, Tina</td>
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<td></td>
<td>Ghaemmaghami (2015)</td>
<td>Dan</td>
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<td></td>
<td>Jessel (2016)</td>
<td>Jeff, Gary, Wayne, Earl, Keo, Lee, Paul</td>
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<td></td>
<td>Santiago (2016)</td>
<td>Zeke</td>
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<tr>
<td></td>
<td>Slaton (2017)</td>
<td>Diego, Emily, Kyle, Jonah</td>
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<td>Escape + attention + mand compliance</td>
<td>Ghaemmaghami (2016)</td>
<td>Alex</td>
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<td>Hanley (2014)</td>
<td>Dale</td>
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<td></td>
<td>Jessel (2016)</td>
<td>Jian</td>
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<tr>
<td>Escape + preferred conversation topics</td>
<td>Jessel (2016)</td>
<td>Sid, Beck, Steve</td>
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<td>Santiago (2016)</td>
<td>Karen</td>
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<tr>
<td></td>
<td>Slaton (2017)</td>
<td>Mason</td>
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</table>
IISCA vs. Standard Analysis (Slaton et al., 2017, JABA)

The diagram illustrates the comparison between IISCA and Standard Analysis in terms of problem behavior per minute over sessions. The graphs show the trend of escape to tangibles and attention for three individuals: Diego, Mason, and Riley. The x-axis represents the sessions, and the y-axis represents the problem behavior per minute. The diagrams indicate a general increase in problem behavior over time for all three individuals under both IISCA and Standard Analysis conditions.
IISCA vs. Standard Analysis (Slaton et al., 2017, *JABA*)

**IISCA**

- Test
- Control

*Escape to predictable schedule*

**Standard**

- Alone
- Attention
- Tangible
- Escape
- Play

*Escape to tangibles, stereotypy, and attention*

Sessions

Problem behavior per min

Kyle

Jonah
**IISCA Synthesized**

- **Addison**: Food, attention
- **Jay**: Escape to tangibles, attention
- **Franklin**: Escape to compliance with requests

**Decoupled Isolated**

**IISCA Synthesized**

- **Slaton et al., (in prep.)**
Why synthesize?

1. Seems to emulate the ecology better

2. Isolated contingencies sometimes do not control behavior whereas synthesized contingencies do

3. Doing so leads to effective action—meaningful treatment effects
   - Hanley et al., 2014, Santiago et al., 2016; Ghaemmaghami et al., 2016
PRODUCING MEANINGFUL IMPROVEMENTS IN PROBLEM BEHAVIOR OF CHILDREN WITH AUTISM VIA SYNTHESIZED ANALYSES AND TREATMENTS

GREGORY P. HANLEY, C. SANDY JIN, NICHOLAS R. VANSELOW, AND LAURA A. HANRATTY
WESTERN NEW ENGLAND UNIVERSITY

The Generality of Interview-Informed Functional Analyses: Systematic Replications in School and Home

Joana L. Santiago¹ • Gregory P. Hanley²³ • Keira Moore⁴⁵ • C. Sandy Jin⁴⁶

CONTINGENCIES PROMOTE DELAY TOLERANCE

MAHSHID GHAEMMAGHAMI, GREGORY P. HANLEY, AND JOSHUA JESSEL
WESTERN NEW ENGLAND UNIVERSITY
Dr. Joshua Jessel & colleagues (in press, *JABA*)

**Achieving Socially Significant Reductions in Problem Behavior following the Interview-Informed Synthesized Contingency Analysis: A Summary of 25 Outpatient Applications**

- **Graph:**
  - Problem behavior per min
  - Baseline vs. Treatment
  - *p* < .001
  - N = 25

- **Caregiver Rating: 1-7**
  - Not acceptable/satisfied/helpful
  - Highly acceptable/satisfied/helpful

- **Survey Results:**
  - You found the recommended treatment acceptable
  - You are satisfied with the amount of improvement seen in problem behavior
  - You are satisfied with the amount of improvement seen in communication skills
  - You found the assessment and treatment helpful to your home situation
Treatment efficacy often depends on synthesized contingencies

From:
Nature and Scope of Synthesis in Functional Analysis and Treatment of Problem Behavior
Slaton & Hanley (under review, *JABA*)

<table>
<thead>
<tr>
<th>First Author (Year)</th>
<th>Standard FA Outcome</th>
<th>Ineffective Isolated Treatment</th>
<th>Relatively effective Synthesized Treatment</th>
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<tbody>
<tr>
<td>Lalli (1996)</td>
<td>Escape, attention</td>
<td>Escape</td>
<td>Escape to attention</td>
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<td>Piazza (1996)</td>
<td>Escape, attention, tangibles</td>
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<td>Escape to tangibles and attention</td>
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<tr>
<td></td>
<td>Carly: esc, att, tang</td>
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<td>Carly: Esc to tang.</td>
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<tr>
<td></td>
<td>Ben: esc, att, tang</td>
<td></td>
<td>Ben: Esc to tang.</td>
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<tr>
<td></td>
<td></td>
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<td>Jerry: Esc. to att.</td>
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<tr>
<td></td>
<td>Emily: escape</td>
<td>Emily: Escape Escape</td>
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<tr>
<td></td>
<td>Sean: escape, tang.</td>
<td>Sean: Escape</td>
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<tr>
<td>Bachmeyer (2009)</td>
<td>Attention, escape</td>
<td>Attention Escape</td>
<td>Escape extinction + attention extinction</td>
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<tr>
<td>Falcomata (2013)</td>
<td>Escape, attention, tangibles</td>
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<td>Escape to tangibles and attention</td>
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<tr>
<td>Zangrillo (2016)</td>
<td>Escape</td>
<td>Escape</td>
<td>Escape to tangibles</td>
</tr>
</tbody>
</table>
IISCA vs. Standard Analysis (Slaton et al., 2017, *JABA*)

IISCA- based treatment

Problem behavior per min

<table>
<thead>
<tr>
<th>Sessions</th>
<th>BL</th>
<th>FCT + EXT</th>
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</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
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<tr>
<td>10</td>
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</table>

Standard-based treatment

Problem behavior per min

<table>
<thead>
<tr>
<th>Sessions</th>
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</tbody>
</table>

*Escape to tangibles, attention*

*Emily*

*Jeff*
“All models are wrong; the practical question is how wrong do they have to be to not be useful.”

Box & Draper, 1987, p. 424
To achieve the humane promise of a function-based treatment and a socially valid outcome

From a functional analysis:

✓ What must I know?
✓ What do I not need to know?
That which I must know via my functional analysis:

- That I can reliably turn problem behavior off with the presentation of the reinforcers.
- That I can reliably turn problem behavior on with the presentation of the evocative events.
- And that the reinforcers and evocative events were identified by other people relevant to the behaver.
From Jessel, Hanley, & Ghaemmaghami (JABA, 2016)
From Rajaraman et al. (2017)

Problem behavior per minute vs Sessions for various individuals. The graphs show behavioral trends over different sessions.
That which I do not need to know via my functional analysis:

✓ The single operant function of each problem behavior
That which I do not need to know via my functional analysis:

✓

✓ Whether problem behavior is maintained by positive or negative reinforcement (see Michael, *Behaviorism*, 1975)
That which I do not need to know via my functional analysis:

✓
✓
✓

✓ Whether some element of a synthesized contingency is a “true” contingency or merely a “false positive”
That which I do not need to know via my functional analysis:

✓
✓
✓
✓
✓ Whether I can neatly compartmentalize the operation in the analysis into a tidy generic class of reinforcement (e.g., social positive, social negative, attn, tang, esc, etc.)
The original gold standard

General and socially validated behavior change by relevant people in relevant contexts

Baer, Wolf, & Risley, 1968

I achieve it:

by being able to turn on and off problem behavior in an analysis informed by caregivers

When I achieve it, I do so with an IISCA
Good luck with all that you do for all who you teach and provide care

For more information go to:
www.practicalfunctionalassessment.com

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Springfield, Massachusetts 01119
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