Why do “lifestyles” dictated by problem behavior persist for families of children with autism?

Wholes have properties not present in the parts and not reducible to the study of the parts

Might we benefit from a touch of Holism?
Be wary of incontrovertible truths.

“All models are wrong; some are useful.”

Box & Draper, 1987, p. 424

Functional assessment process to determine the variables influencing problem behavior
Some Assumptions

Problem behavior is an operant

Certain situations potentiate certain consequences

Goal of a Functional Assessment

Identify the consequences that maintain problem behavior

Identify the situations that evoke the behavior

In order to treat problem behavior

Functional Assessment Process

Indirect Assessment
Interview

Descriptive Assessment
Observe

Functional Analysis
Observe while manipulating

Discovery and Demonstration
Defining features of the Standard Functional Analysis

- Multiple test conditions
- Uniform test conditions
- Isolated test contingencies
- Reinforce dangerous behavior only
- Toy-play control condition

Example of a standard functional analysis

Problem Behavior Per Minute

Sessions

1965-2000 (Hanley et al., 2003)
- 64% SFAs
- 1 out of 3 with modifications

2001-2012 (Beavers et al., 2014)
- 85% SFAs
- 1 out of 7 with modifications

How do we know this is the standard functional analysis?
(Jessel, Hanley, Ghaemmaghami, 2016)
Is the Standard Functional Analysis Effective?

Does it lead to a differentiated analysis?

<table>
<thead>
<tr>
<th>Literature reviews:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hanley et al. (2003):</td>
<td>94%</td>
</tr>
<tr>
<td>Beavers et al. (2014):</td>
<td>92%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case series:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hagopian et al. (2014):</td>
<td>47%</td>
</tr>
<tr>
<td>Slaton et al. (2016):</td>
<td>44%</td>
</tr>
</tbody>
</table>

Does it lead to larger treatment effects?

Campbell (2003)

*Higher PZD when Rx was based on "EFA"

But, these larger effects were almost exclusively obtained when researchers implemented the treatments in controlled settings under rich schedules of reinforcement

Is the Standard Functional Analysis Effective?

Not one study showing a socially-validated outcome in a relevant setting when implemented by a relevant person

when a standard functional analysis was used
Apparent solution to ineffectiveness: Excessive elaboration

Elaboration of the standard functional analysis (SFA)

<table>
<thead>
<tr>
<th>Prior to a SFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal descriptive assessments</td>
</tr>
<tr>
<td>Preference analyses</td>
</tr>
<tr>
<td>Demand analyses</td>
</tr>
<tr>
<td>Precursor analyses</td>
</tr>
<tr>
<td>Manuals outlining extensive team-based processes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Following a failed SFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many slight and systematic deviations from the SFA core procedures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Following a failed SFA-based treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stimulus avoidance analyses</td>
</tr>
<tr>
<td>More preference analysis and reinforcer analysis</td>
</tr>
</tbody>
</table>

Despite the Excessive Elaboration of the Standard Functional Analysis...

Not one study showing...

...a practical outcome in a relevant context

...the social acceptability of the process

...a socially-validated effect on problem behavior
“Since all models are wrong, the scientist cannot obtain a ‘correct’ one by excessive elaboration.

Just as the ability to devise simple but evocative models is the signature of great science so overelaboration is often the mark of mediocrity.”

George Box, 1976, p. 792

Research to practice gap

Possible reason:
Because the outcomes are mediocre even when the process is elaborate

Functional analysis has been around for approx. 50 years (e.g., Lovaas et al., 1965; Sailor et al., 1968)

Standard functional analyses have been around 34 years (Iwata et al., 1982)

Over 300 studies containing over 500 standard functional analyses have been published (Jessel et al., 2016)

Yet, 55 to 65% of practitioners recently surveyed reported never conducting a functional analysis
( Oliver et al., 2016; Roscoe et al., 2015)
## IISCA

**Interview-informed Synthesized Contingency Analysis**

<table>
<thead>
<tr>
<th>Standard Functional Analysis</th>
<th>Interview-Informed Synthesized Contingency Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple test conditions</td>
<td>Single-test condition</td>
</tr>
<tr>
<td>Uniform test conditions</td>
<td>Individualized test conditions</td>
</tr>
<tr>
<td>Isolated test contingencies</td>
<td>Synthesized contingencies</td>
</tr>
<tr>
<td>Reinforce dangerous behavior</td>
<td>Reinforce precursors to and dangerous behavior</td>
</tr>
<tr>
<td>Toy-play control condition</td>
<td>Test-matched control</td>
</tr>
</tbody>
</table>

### An IISCA

![Behavior Chart](chart.png)
Some Important Aspects of our 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 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

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 & Ivita, 2007
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.

Why might problem behavior occur?

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

Combinatorial 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 access to rituals, preferred conversations**
7. **Etc...**

Case Example (Bob, 8 yo, dx: Autism)
Analyst: Sandy Jin
Setting: Clinic

Inextricable synthesis

**Hypothesis:**

Bob engages in meltdowns and aggression in order to obtain:

"His way" in the form of escape from adult instructions and access to preferred ways of interacting with electronics or academic materials
**Case Example (Dale, 11 yo, dx: Autism)**

**Therapist:** Sandy Jin  
**Setting:** Clinic

**Hypothesis:**  
Dale engages in meltdowns and aggression in order to obtain:  
"His way" in the form of escape from adult instructions and access to preferred (tangible) items, and adult attention.

---

**Case Example (Gail, 3 yo, dx: PDD-NOS)**

**Analyst:** Nicholas Vanselow  
**Setting:** Clinic

**Elective synthesis**  
(with initial verification)

**Hypotheses:**  
Gail engages in meltdowns and aggression in order to obtain:  
preferred (tangible) items and maternal attention.

---

**Why synthesize?**

1. Seems to emulate the ecology better  
2. Isolated contingencies sometimes do not control behavior whereas synthesized contingencies do.
   - Gail et al., 2005  
   - Doelezal & Kurtz, 2010  
   - Hanley et al., 2014  
   - Ghaemmaghami et al., 2016  
   - Mueller et al., 2005  
   - Slaton et al., 2016  
   - Slaton et al., 2016
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

Some reasonable questions:

Have IISCAs been replicated? (I.e., Do they have generality?)

Yes.
Has the process been socially validated?

Yes.

Social Acceptability Questionnaire Results

<table>
<thead>
<tr>
<th>Questions</th>
<th>Dale</th>
<th>Bob</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Acceptability of assessment procedures</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

Note: 7=highly acceptable, 1=not acceptable.

from Hanley et al., JABA, 2014
Has the process been socially validated?
Yes.

Have socially validated treatments been developed from the IISCA?

Have socially validated effects been achieved from the IISCA?

Socially validated treatments and outcomes.
Yes.

<table>
<thead>
<tr>
<th>Social Acceptability Questionnaire Results</th>
<th>Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questions</td>
<td>Grid</td>
</tr>
<tr>
<td>1. Acceptability of assessment procedures</td>
<td>7</td>
</tr>
<tr>
<td>2. Acceptability of treatment packages</td>
<td>7</td>
</tr>
<tr>
<td>3. Satisfaction with improvement in problem behavior</td>
<td>7</td>
</tr>
</tbody>
</table>

Note: 7 = highly acceptable, highly satisfied
1 = not acceptable, not satisfied

from Santiago et al., JADD, 2016

from Hanley et al., JABA, 2014
Socially validated treatments and outcomes.

Yes.

From Santiago et al., JADD, 2016

Treatment:

Unpredictable and intermittent reinforcement of communication, toleration, and compliance

Implemented by relevant caregivers in relevant contexts who impose relevant and historically challenging routines

From Santiago et al., JADD, 2016

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

From Santiago et al., JADD, 2016

CONTINGENCIES PROMOTE DELAY TOLERANCE

From Santiago et al., JADD, 2016
Be on the lookout in JABA for this study by Dr. Joshua Jessel & colleagues:

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

But, didn't Dr. Fisher just publish an article in JABA showing the IISCA's were always incorrect?

Comparisons of synthesized and individual reinforcement contingencies during functional analysis
Wayne W. Fisher, Brian D. Greer, Patrick W. Romani, & Amanda N. Zangrillo
2016

Differentiation
SFA: 4 of 5
IISCA: 4 of 5

From Fisher et al., 2016
Irrelevance of a contingency is hard to prove.

Generic functions can be easily moderated in analyses.
(see Hanley, Piazza, & Fisher, JABA, 1997)

There are no pure tests of control by single reinforcers, especially tangibles.

The truth can be found in effective action
- Differentiated analysis
- Efficiency of and control in analysis
- Meaningful treatment effects

Table 1

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Sex</th>
<th>Diagnosis</th>
<th>Tendancy</th>
<th>Communication</th>
<th>Ambiguity</th>
<th>Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diego</td>
<td>11</td>
<td>M</td>
<td>Autism</td>
<td>2</td>
<td>Verbal</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Mason</td>
<td>10</td>
<td>M</td>
<td>Autism</td>
<td>1</td>
<td>Verbal</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Riley</td>
<td>12</td>
<td>M</td>
<td>Autism</td>
<td>3</td>
<td>Verbal</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Kyle</td>
<td>17</td>
<td>M</td>
<td>Autism</td>
<td>2</td>
<td>Verbal</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Sarah</td>
<td>7</td>
<td>F</td>
<td>Autism</td>
<td>1</td>
<td>Verbal</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Emily</td>
<td>10</td>
<td>F</td>
<td>Autism</td>
<td>2</td>
<td>Verbal</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>HD</td>
<td>10</td>
<td>M</td>
<td>Autism</td>
<td>2</td>
<td>Verbal</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Chelsea</td>
<td>7</td>
<td>F</td>
<td>Autism</td>
<td>3</td>
<td>Verbal</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Alex</td>
<td>14</td>
<td>F</td>
<td>Autism</td>
<td>3</td>
<td>Verbal</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>


IISCA vs. Standard Analysis
Treatment Comparison Results

<table>
<thead>
<tr>
<th>Sessions</th>
<th>FCT-EXT Escape to tangibles</th>
<th>BL FCT + EXT Escape to tangibles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The supposed problem(s) with the IISCA

**Imprecision**

- Do not know the specific operant class to which any particular topography of problem behavior belongs.
- Do not know whether some part(s) of the synthesized contingency are irrelevant.
- Do not know whether behavior is maintained by pos or neg sr.
- Sometimes cannot neatly describe or compartmentalize the controlling variables.

**Consider the effective action without knowing these things**

Imprecision is not Unique to the IISCA

**Interpretive ambiguity from an IISCA**

<table>
<thead>
<tr>
<th>Antecedent (Attention / No tangible)</th>
<th>PB Consequence (Attention / Tangible)</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Attention / No tangible</td>
<td>Attention / Tangible</td>
<td>Behavior may be controlled by one, the other or both.</td>
</tr>
</tbody>
</table>

**Partly synthesized contingencies populate SFAs**

**Interpretive ambiguity from an SFA**

<table>
<thead>
<tr>
<th>Antecedent (Attention / No tangible)</th>
<th>PB Consequence (Attention / Tangible)</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Attention / No tangible</td>
<td>No Attention / Tangible</td>
<td>Might be evoked by low attn, or lack of tangible, or both and maintained by attn, or tang or both.</td>
</tr>
<tr>
<td>Attention / No tangible</td>
<td>Attention / Tangible</td>
<td>Might be maintained by tangible or attention or both.</td>
</tr>
</tbody>
</table>

The supposed precision of a SFA is an illusion.
“All models are wrong; the practical question is how wrong do they have to be to not be useful.”

Box & Draper, 1987, p. 424

Recognize the Historical Significance of the Standard Functional Analysis

- Moved us from behavior modification to behavior analysis
  - Taught us our professional humility
- Inspired us to transcend description and prediction to control
  - Allowed us to be scientific practitioners
- Showed us how to create stable and controlled baselines
  - Allowed us to discover and enhance treatments

Multiple test conditions
- Uniform test conditions
- Isolated test contingencies
- Reinforce dangerous behavior only
- Toy-play control condition
To achieve the humane promise of a function-based treatment and a socially valid outcome

From a functional analysis:

- What must I know?
- What can I safely infer?
- 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

That which I can safely infer via my functional analysis:

- Response class membership
Problem Behaviors reported to co-occur (in order of concern)
1. SIB
2. Aggression
3. Disruptive Behavior
4. Disruptive vocalizations
5. Whining/complaining

This analysis shows all forms of problem behavior are evoked and maintained by same synthesized contingency.

This happens every time we conduct this sort of analysis. (Warner et al., 2016)

This happens every time anybody else conduct this sort of analysis (Smith and Churchill, 2002, Borrero & Borrero, 2008, Herscovitch et al., 2009)

That which I can safely infer via my functional analysis:

✓ Response class membership
Reported co-occurrence = maintained by same reinforcers

I will infer response class membership and use their response to intervention (RTI) as verification
That which I do not need to know via my functional analysis:

- The single operant function of each problem behavior
- Whether problem behavior is maintained by positive or negative reinforcement
- Whether some element of a synthesized contingency is a “true” contingency or merely a “false positive”
- 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

I achieve it:

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

I achieve it with an IISCA

For more information go to:

www.practicalfunctionalassessment.com
Come up with at least one question relevant to conducting the functional assessment process.

• Why is it important to conduct a functional assessment with a functional analysis as part of the process prior to treating severe problem behavior?
  a. because the functional assessment process is humane and dignifying
  b. because behavior modification is ineffective
  c. because research reviews show that more effective treatments result from functional assessment processes, especially those that contain a functional analysis

• Identify the functional assessment tools that can be omitted from an effective functional assessment process of severe problem behavior:
  a. closed ended indirect assessment and functional analysis
  b. open-ended indirect assessment and formal descriptive assessment
  c. closed-ended indirect assessments and formal descriptive assessments
  d. open-ended indirect assessment and functional analysis
• What are the essential components of a functional analysis of problem behavior?
  a. Direct observation of problem behavior during least 4 rapidly alternating conditions (demand, attention, alone, and toy play)
  b. Direct observation of problem behavior in a condition containing the reinforcing contingency thought to maintain severe problem behavior and one condition in which this contingency is absent
  c. Indirect observation of problem behavior during several test conditions and a toy play control condition
  d. Direct observation of problem behavior in the natural environment

• Nominate the essential features of an interview informed synthesized contingency analysis (IISCA)
  a. Test-matched control condition
  b. Interview-informed synthesized contingency
  c. Single and individualized test condition
  d. Reinforcement programmed for precursors to and dangerous behavior

• What does an informed analysis provide the behavior analytic practitioner?
• What does an informed analysis provide the behavior analytic practitioner?
  a. a demonstration of problem behavior sensitivity to a suspected reinforcement contingency
  b. the truth regarding the variables controlling problem behavior
  c. a stable and sensitive baseline from which to evaluate treatment
  d. a properly motivating set of conditions to teach functional communication and delay tolerance

Why do the analysis if the interview results seems to clearly indicate a particular function?

Take Home Point
Prior to treating problem behavior of children with autism

1. Conduct an open ended interview to discover the context and outcomes that seem relevant to problem behavior

2. Conduct an IISCA to demonstrate the validity of the suspected contingency
   – and to have access to the properly motivating conditions to teach skills
Let’s role play some functional analyses.

Hand-to-head-SIB and groaning appear to be maintained by:

1. Tangibles
2. Escape from demands to access tangibles
3. Escape from demands to access tangibles, attention, and stereotypy
4. Compliance with the child’s mands
   (Escape from the teacher’s way to access the child’s way)

Let’s design analyses from the interview results

Some tips:

1. Do not put responses in contingency class that are likely to be maintained by automatic sr.
2. Do consider putting some ill-formed mands (e.g., protests) in the contingency class if severity of pb is outrageous.
3. Incorporate the most challenging and convenient EOs.
   • Use challenging and inconvenient EOs as tests of treatment generality
4. Conduct analysis where you have the most control and will be able teach the skills.
5. Err on the side of synthesizing too many contingencies rather than too few.

Treating Severe 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

Workshop for Detroit Wayne Mental Health Authority June, 2017
Functional Assessment and Treatment Model

Steps (expanded)

1. Interview
2. Functional Analysis
3. Simple Functional Communication Training
4. Complex FCT
5. Tolerance Response Training
6. Easy Response Chaining
7. Difficult Response Chaining
8. Treatment Extension

IISCA-Based Treatment

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

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

With
  - Intermittent & unpredictable reinforcement

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

A simple response (button press: "My way please") is prompted and reinforced with (escape to child-directed play & teacher attention)
A more interactive response (shoulder tap, wait for teacher acknowledgement, two-button press; May I have / My way please”) is prompted and reinforced.

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

Responses to disappointment are prompted and reinforced.

(Deep breathing and nodding yes)

Case 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.
What is the treatment????

Intermittent and unpredictable reinforcement of life skills:
- Functional Communication
- Delay/denial tolerance
- Compliance

“Play with me”

- Saying, “Will you play with me, please?” with appropriate tone and volume
- Saying “okay” while glancing at the parent who just said “No,” “Wait,” “Hold on,” or “Be a minute”
Treatment Analysis

Dale

11-year old boy diagnosed with Autism

1. Simple motor movements
   Walk over here, stand up, sit down, clap your hands (shoulder, head, toes)

2. Simple academics
   Draw a circle, write your name, copy what I write

3. Homework/Task preparation
   Unzip your backpack, take out the book, erase the board, come to the board, put these books on the book shelf

4. Complex academic: Reading skills
   Read this paragraph, answer this question...

5. Complex academic: Math skills
   Solve this (addition, subtraction etc...)

6. Self-help skills
   Wash your hands, do this chore (e.g., organizing chairs)

7. Play skills
   Throw or kick the ball

Problem Behavior per min

Simple FCR

Complex FCR

Tolerance Response per min

Reinforcement (%)

0 25 50 75 100

BL Denial and Delay Tolerance Training

Denial

BL FCT + EXT

Complex Skills

Simple Skills

Fixed Ratio

Variable Ratio

Variable Interval

Fixed Interval
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.
### Cost Assessment

<table>
<thead>
<tr>
<th>Steps</th>
<th># of Visits</th>
<th>Cost (in US dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1° Interventions</td>
<td>1</td>
<td>200</td>
</tr>
<tr>
<td>2° Functional Analysis</td>
<td>1-4</td>
<td>100-900</td>
</tr>
<tr>
<td>3° Functional Communication Training</td>
<td>1-2</td>
<td>100-150</td>
</tr>
<tr>
<td>4° Complex FCT</td>
<td>1-6</td>
<td>200-450</td>
</tr>
<tr>
<td>5° Telecommunication Training</td>
<td>1-6</td>
<td>100-160</td>
</tr>
<tr>
<td>6° Easy Response Chaining</td>
<td>1-9</td>
<td>100-534</td>
</tr>
<tr>
<td>7° Complex Response Chaining</td>
<td>1-4</td>
<td>200-860</td>
</tr>
<tr>
<td>8° Tolerance Response Training</td>
<td>2-7</td>
<td>300-1400</td>
</tr>
<tr>
<td>9° Easy Response Chaining</td>
<td>2-11</td>
<td>400-2240</td>
</tr>
<tr>
<td>10° Treatment Evaluation</td>
<td>4-5</td>
<td>800-1600</td>
</tr>
</tbody>
</table>

**Totals:**
10 - 32 | 27 | 5,467

Supervision meetings:
14 - 28 | 20 | 1000 - 1750 | 1250

Report writing/planning:
0 - 4 | 0 | 500

**Grand Totals:**
15 - 36 | 20 | 6,250 - 8,650 | 7,217

---

### Social Acceptability Questionnaire Results

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

### IISCAs have led socially-validated outcomes

#### Social Acceptability (Questionnaire Results)

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</tr>
<tr>
<td>4. Helpfulness of consultation</td>
<td>7</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

#### Personal comfort level of presenting the evocative situation

<table>
<thead>
<tr>
<th>Questions</th>
<th>Comfort Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Taking away toys</td>
<td>3</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>3</td>
</tr>
</tbody>
</table>

**Note:** 7 = very comfortable
1 = not comfortable.

---

### IISCAs have led socially-validated outcomes

#### Personalized Social Validity Data

<table>
<thead>
<tr>
<th>Questions</th>
<th>Comfort Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intervening when child is not doing homework and other non-preferred activities</td>
<td>3</td>
</tr>
<tr>
<td>2. Taking away electronics</td>
<td>3</td>
</tr>
<tr>
<td>3. Intervening as consulting with 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:

1. Some parents had advice on how to talk to the child and structure their time. While
   I didn’t use the advice, it was helpful. Do you have any additional comments or
   feedback to share?

2. Sr Complex FCR
   "No" Tolerance Response
   Instruction Compliance Reinforcement is:
   Function-based Variable Differential Intermittent Variable in duration

3. Was the outcome what you expected? If so, please circle the number that best
   describes your level of satisfaction:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied</td>
<td>Highly Satisfied</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   Please comment:

   Sr Complex FCR
   "No" Tolerance Response
   Instruction Compliance Reinforcement is:
   Function-based Variable Differential Intermittent Variable in duration

4. If your answer is "No" Tolerance Response, how did the child respond?

   Sr Complex FCR
   "No" Tolerance Response
   Instruction Compliance Reinforcement is:
   Function-based Variable Differential Intermittent Variable in duration

5. If your answer is "No" Tolerance Response, how did the child respond?

   Sr Complex FCR
   "No" Tolerance Response
   Instruction Compliance Reinforcement is:
   Function-based Variable Differential Intermittent Variable in duration
**Treatment Implementation**

1. Spin it!
2. Keep it to yourself
3. Require that behavior next time

*Materials not needed:*
- Laminator
- Laminating machine
- Glue guns
- Visa to markers
- Sticker
- Tokens
- Timers
- Stickers
- Candies
- Anything that was not already in the child’s environment!

---

**App called “Names in a Hat”**

18 compliances

TR

2 compliances

---

**App called “Roundom”**

18 compliances
Ten Unique Aspects of our Approach

7. Our function-based treatments are always skill-based

We always increase the complexity, flexibility, and/or interactional nature of the FCR before teaching delay/denial tolerance

Simple FCR: (“My way” or “My way, please”)

Complex FCR: “Excuse me”

“May I have my way, please?”
“Will you play my way, please?”

After a second or two, “Yes, Billy”

After a second or two, “Sure, Billy”

Prompting: Immediate then faded.
**Implementation questions regarding FCT?**

**Tips:**

1. **Teach a simple omnibus mand rather than try to teach specific mands for different reinforcers at first.**
   - Specific mands can be taught once problem behavior is zero and the omnibus mand is occurring independently.

2. **Rely on a novel mand rather than a pre-existing mand.**

3. **Do everything possible to avoid chaining problem behavior with the target mand.**
   - For instance, be careful of prompting the novel mand after emission of pb
   - Either let extinction of pb occur via time out or use an errorless prompting tactic such as most to least prompting

4. **Start out fast and sweaty; end slow and cool.**
Come up with at least one question relevant to implementing Functional Communication Training (FCT)

Ten Unique Aspects of our Approach

9. We always explicitly teach delay/denial tolerance

This takes up most of our time with children and families (not the functional assessment or teaching the FCRs)

First teach an explicit response to a variety of disappointment signals, then to make treatment practical:
• Chain important behavior to the tolerance response
  (there is always a progressive component—a gradual increase in time, stakes, or both)

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)
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

• Nominate the critical features of programming to teach children to tolerate delays to the reinforcers maintaining their problem behavior.
  a. once compliance chains are acquired, always delay the reinforcer following a functional communication response
  b. teach an appropriate response to delay and denial cues by providing preferred candy when the child does not meltdown following a delay or denial cue
  c. end the delay when the amount of time determined prior to sessions has expired
  d. reinforce the functional communication response immediately at least some of the time
  e. end delays when the child has engaged in a sufficient amount of an appropriate activity
• In this skill-based program, reinforcement is:
  a. function-based as opposed to arbitrary
  b. differentially delivered as opposed to noncontingent
  c. continuous as opposed to intermittent
  d. consistent as opposed to variable in duration
  e. fairly unpredictable as opposed to highly predictable

• Nominate the critical aspects of delay and denial tolerance training:
  a. progressively increase the average amount of behavior required to terminate the delay
  b. teach an appropriate response to multiple cues of delay, denial, or disappointment
  c. always provide immediate reinforcement for some functional communication responses
  d. do not signal how much behavior is required to terminate the delays
  e. terminate the delay for various amounts of behavior

• From the list below, nominate the items usually not necessary when implementing the treatment across the day:
  a. Laminate and laminating machine
  b. Glue guns
  c. Vis a vis markers
  d. Velcro
  e. Tokens and Token boards
  f. Timers
  g. Stickers
  h. Candies
Come up with at least one question relevant to implementing the function-based treatment as described.

Then, let’s talk logistics.

A final message

With Autism, there is a higher likelihood of problem behavior

- Meltdowns
- Aggression
- Self-injury

References: Baghdadi, Pascal, Grô, & Aussilloux, 2003; Horner et al., 2002; Kim et al., 2000; Murphy, Healy, & Leader, 2009; Thompson, 2009
It is attainable for most

without drugs

without hospitalization

without harsh punishment

without candies, stickers, and token boards

It is attainable

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

understanding can be realized quickly, safely, and analytically

It is attainable

when children are taught skills* to help them navigate our complex social world

*Communication and tolerance
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.

Addressing Stereotypy
The Importance of a Balanced Approach to this Core Symptom of Autism
Gregory P. Hanley, Ph.D., BCBA-D

For more information go to: www.practicalfunctionalassessment.com

Workshop for Detroit Wayne Mental Health Authority June, 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
Stereotypy can serve different functions

Stereotypy is usually maintained by sensory (automatic) reinforcement
When is Stereotypy a Problem?

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

when it interferes with attempts
to teach skills or concepts

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)

Some applications of the model

- Three teenagers
  - Jon, Patrick, & Edward

- Stereotypy
  - Hand flapping, finger tapping or flicking, body rocking, mouthing, eye pressing, ear holding
Step 1: Functional analysis

Conclusion
Stereotypy is probably maintained by automatic reinforcement

Step 2: Conduct a preference assessment

See these studies for the successful treatment of stereotypy by providing free access to materials identified via preference assessment

Favell, McGinsey, & Schell (1982) AIDD
Piazza, Adelini, Hanley, Goh, & Delia (2000) JABA
Roscoe, Iwata, & Goh (1999) JABA

Step 2: Preference Assessment
Step 2: Preference Assessment

**Conclusion**
Reinforcers earned via item engagement were neither substitutable for nor did they effectively compete with reinforcers earned via stereotypy.

---

Step 3: Add Prompting of Item Engagement

**See these studies for the successful application of prompting engagement with freely available toys to address stereotypy**

Britton, Carr, Landaburu, & Romick (2002) JABA

Horner (1980) JABA

Lindberg, Iwata, & Kahng (1999) JABA

---
Step 3: Add Prompting of Item Engagement

**Conclusion:** Stereotypy persisted, so..... prompting apparently did not result in access to more or better reinforcers for item engagement

Step 4: Alter consequence of stereotypy--add blocking

See these studies for the successful treatment of stereotypy by blocking stereotypy

Lerman, & Iwata (1996) JABA
Reid, Parsons, Phillips, & Green (1993) JABA
Roscoe, Iwata, & Goh (1999) JABA
Step 4: Alter consequence of stereotypy--add blocking

**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

Step 5: 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
Sessions: 10 20 30 40 50 60 70 80 90 100 110 120

# of Rs / Form

Requirements:
1. / 1 post on I-bar
2. / 2 posts on I-bar
3. / 2 posts on I-bar
4. / 1 cube
5. / 2 cubes
6. / 3 cubes
7. / 4 cubes
8. / 5 cubes
9. / 6 cubes
10. / 7 cubes

Baseline Responses per min

Treatment for Shaping Specific Forms of Functional Engagement

Fourier Analysis

Days

Sessions

0 20 40 60 80 100 120

Stereotypy
Prompted SFE
Specific Functional Engagement

/ 1 post on I-bar
/ 2 posts on I-bar
/ 3 posts on I-bar
/ 4 posts on I-bar
/ I-bar on posts (1 cube)
/ 2 cubes
Is this a humane treatment?

Are staff willing to implement these treatments?

Does the person with stereotypy like or loathe this treatment?

Table 2: Questions and Results of the Social Validity Questionnaire

<table>
<thead>
<tr>
<th>Question</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 (5 - 7)</td>
</tr>
<tr>
<td>sufficient?</td>
<td></td>
</tr>
<tr>
<td>3. I find 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 (5 - 7)</td>
</tr>
<tr>
<td>that are attempting to decrease motor stereotypy and increase age-appropriate play skills.</td>
<td></td>
</tr>
</tbody>
</table>
**Similar inquiry, different respondent:**

Which treatment did each teenager prefer?

<table>
<thead>
<tr>
<th>Colors</th>
<th>Orange</th>
<th>Purple</th>
<th>Light Blue</th>
<th>Hot Pink</th>
<th>Royal Blue</th>
<th>White</th>
<th>Pink</th>
<th>Teal</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Selected</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>
Blocking Only

Activities Only

Activities, Blocking, and Contingent Access to Stereotypy

Initial Links

Terminal Links

Link Colors

Differential Consequences for Selections

No Differential Consequences for Selections

Trials

Cumulative # of Selections

(Cumulative # of Selections)
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.

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
Okay, but did either yield stimulus control over stereotypy?
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
behavior-based alternation (chained schedules)?
These children preferred behavior-based alternation (chained schedules)

When treating stereotypy are we missing some important opportunities?

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

Can we 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/Check-in based model in which communication, toleration, and contextually appropriate behaviors are strengthened (Hanley, Jin, Yanzofox, & 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)
**Response Chaining Sequence**

<table>
<thead>
<tr>
<th>Trial</th>
<th>Task</th>
<th>Longest chain of demands</th>
<th>Other attributes</th>
<th>Trial notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Matching, pictures</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>+ Matching numbers, letters</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>(Same as above)</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>(Same as above)</td>
<td>8</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>(Same as above)</td>
<td>10</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>(Same as above)</td>
<td>10</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>+ Matching objects</td>
<td>10</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>+ ADLs</td>
<td>10</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>+ Receptive ID of pictures</td>
<td>10</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>+ Receptive ID of pictures</td>
<td>10</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>

**Social Validity Results**

<table>
<thead>
<tr>
<th>Question</th>
<th>Rate 1</th>
<th>Rate 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>The treatment first 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.</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>The amount of behavior change (i.e., the effects of treatment) was acceptable or sufficient.</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>The overall goals of this treatment were acceptable, appropriate, and important for the individual.</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>I would recommend this treatment package to other therapists or providers who are interested in reducing stereotypy and increasing appropriate engagement.</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>
1. 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.

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

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

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

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:
- Hand mouthing
- Scripting
- Interactive, imaginative play
Final Take-Home Points

Treatment for stereotypy:

- can be function-based
- should be comprehensive
- should involve a strong, intermittent, and unsignaled contingency to inhibit stereotypy and do something else contextually appropriate in order to engage in stereotypy

For automatically reinforced stereotypy:

Permission based model in which communication, toleration, and contextually appropriate behaviors are strengthened via intermittent and unpredictable access to stereotypy

1. Teach child to request access to stereotypy (via blocking and DR)
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 blocking and contingent, intermittent, and unpredictable access to stereotypy and prompting)

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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