Developing Skill-Based Interventions Following Practical Functional Assessments of Problem Behavior

Joshua Jessel
PhD, BCBA-D

National Autism Conference Workshop
7/31/2017
Autism is characterized by

1. Impairments in language development and social interaction
2. Excessive repetitive behavior
But what is the most difficult issue for parents and teachers of most children and young adults with autism?
With Autism, there is a higher likelihood of problem behavior:

- Meltdowns
- Aggression
- Self-injury

(Baghdadli, Pascal, Grisi, & Aussilloux, 2003; Horner et al., 2002; Kim et al., 2000; Murphy, Healy, & Leader, 2009; Thompson, 2009)
Over 60% of children diagnosed with Autism exhibit some form of problem behavior such as:

- Meltdowns
- Aggression
- Self-injury
I can never eat out with my family because of my son’s tantrums in restaurants.

Almost every day I have to leave work early to pick up my son from school because his aggression is too severe to manage.

It is hard to see grandma and grandpa because they could really get hurt.
Fine tuning over the past decades has lead to a highly effective assessment and treatment process:

1) Functional analysis
2) Function-based treatment
3) Reinforcement thinning
Standardization of a Functional Analysis Model

- **Multiple test conditions**: Attention, escape, alone, tangible
- **Uniform test conditions**: same procedures for all participants
- **Isolated test conditions**: reinforcers evaluated independently
- **Play control**: One control for all test conditions including unrelated leisure items
- **Only dangerous behavior**: Minimal response class excluding precursors or non-dangerous behavior

(Jessel, Hanley, & Ghaemmaghami, under review)
Respondents reported using informant and descriptive assessments more frequently than functional analyses, and a majority of respondents (63%) indicated that they “never” or “almost never” used functional analyses to identify the function of behavior. This is concerning, given the research that has demonstrated the unreliability of indirect FBA methods (Arndorfer, Oliver, Pratt, & Normand, 2015).

“...takes too much time and resources...”

“...Seemed unsafe and often inconclusive...”

Results of the current survey indicated that the majority of respondents reported using descriptive assessment more often than functional analysis for identifying the function of problem behavior. Although this finding replicates pre-
Obstacles:

#1: Take too much time
#2: Too complex
#3: Too risky for client or analyst
#4: Difficult to “sell” to constituents
#5: Can’t be used for dangerous behavior
#6: Can’t address low-rate problem behavior
#7: Can’t address covert problem behavior
#8: Can’t address multiple topographies or functions
#9: Can’t address constantly changing reinforcers
We need an assessment not designed for researchers but an assessment that embodies the elements important to practitioners

Quick

Practical

Cost efficient
Practical Functional Assessment Process

- **Indirect Assessment**: interviews
- **Descriptive Assessment**: observations
- **Functional Analysis**: observations with manipulation
This is your girlfriend
Your girlfriend likes to get ice cream from this ice cream truck and you want to know why
• What do you start with?
  • Indirect assessment
  • Q: “Why do you go to that ice cream truck?”
  • A: “To buy ice cream.”

• Next step?
  • Possibly direct assessment
• Last step?
  • Functional analysis
  • Control condition:
    • Give her all the ice cream for free
    • Pay truck to not sell ice cream anymore
  • Test condition:
    • Starve her of ice cream
    • Tell the truck to sell ice again
The graph shows the number of ice cream cones bought per week by a girlfriend over 10 weeks. The graph compares the behavior of a 'Test' group and a 'Control' group. The 'Test' group hypothesized a contingency, which led to attempts to control the problem behavior.
Is your girlfriend’s buying ice cream maintained by the production of ice cream?
You also noticed during your direct assessment that the ice cream truck driver looks like this.
• So you conduct another functional analysis
  • Test condition: Hottie McHottie sells her ice cream
  • Control: Not so Hottie McHottie sells her ice cream
So you conduct another* functional analysis

*Disclaimer: unlikely to need multiple tries

Data from: Hagopian, Rooker, Jessel, & Deleon (2013); Jessel, Hanley, & Ghaemmaghami (2016); Jessel et al., (2017)
Case Example (Mike, 8 yo, dx: PDD-NOS)
Team: Hillary Kirk, Ruth Whipple (2:1 tutors); Joshua Jessel (supervising BCBA-D)
Setting: Outpatient Clinic

Interview (15 min)
Observation (5 min)
Analysis (25 min)

Total time until treatment: 45 min
Interview suggested that Mike engaged in meltdowns and aggression....

when someone directed or engaged with him during his play....

in order to gain independent and child-oriented play with preferred items

Case Example (Mike, 8 yo, dx: PDD-NOS)
Team: Hillary Kirk, Ruth Whipple (2:1 tutors); Joshua Jessel (supervising BCBA)
Setting: Outpatient Clinic
Case Example (Mike, 8 yo, dx: PDD-NOS)
Team: Hillary Kirk, Ruth Whipple (2:1 tutors); Joshua Jessel (supervising BCBA)
Setting: Outpatient Clinic

**Hypotheses:**
Mike engages in meltdowns and aggression in order to obtain:
Independent access to leisure items
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. HANRARY

WESTERN NEW ENGLAND UNIVERSITY
What is and is not our approach?

*Our approach is*

Inductive – we never know what the analysis will look like until we meet the family

Intuitive – we listen to the families and solve the problems they tell us they have

*Our approach is NOT*

Standardized – we do not fit each child in a ready made analysis

Assumptive – we do not believe we know the problem better than the family
Three Steps to Conducting a Practical Functional Assessment
The open-ended interview allows the therapist to:

a) Develop rapport with parents or teachers
b) Identify unique contingencies
c) Develop “function hunches”
d) Set up a safe and quick analysis

Disclaimer: Information from the interview is to be used to inform the subsequent observation and analysis and not interpreted alone.
2. Describe his/her language abilities.

- [ ] Non-verbal
- [ ] 1-word utterances
- [ ] Short disfluent sentences
- [ ] Full fluency

**Comments:**

<table>
<thead>
<tr>
<th>7. What are the problem behaviors? What do they look like?</th>
</tr>
</thead>
<tbody>
<tr>
<td>- [ ] Aggression</td>
</tr>
<tr>
<td>- [ ] Disruption</td>
</tr>
<tr>
<td>- [ ] SIB</td>
</tr>
<tr>
<td>- [ ] Other</td>
</tr>
</tbody>
</table>

**Comments:**
12. Under what conditions or situations are the problem behaviors most likely to occur?

13. Do the problem behaviors reliably occur during any particular activities?

14. What seems to trigger the problem behavior?
17. How do you and others react or respond to the problem behavior?

18. What do you and others do to calm him/her down once he/she engaged in the problem behavior?

19. What do you and others do to distract him/her from engaging in the problem behavior?
Bobby hits himself and scratches himself. He starts to scream and then will repeatedly slap himself in the face until it is red and raw.

I would say it definitely occurs most during his cleaning time. He as OCD like behaviors and every time he comes home he has to put his papers in a certain way, reorganize stuff, and move things around.

There is no way of distracting him. We try to give him the activities that he likes or try to move him to a different area but the second we get close he will start screaming and slapping himself. The only way to calm him down is to give him his space and let him do his thing.
1. Target problem behavior:

Topography #1 **Screaming**

*Operational definition:*
Vocalizations louder than conversational speech including screeches, yelling, or howling

Topography #2 **Face slapping**

*Operational definition:*
Attempts to or successful open handed hit to face from more than three inches away from face and causes audible hit

Topography #3 **Self scratching**

*Operational definition:*
Attempts to or successfully moving nails at least one inch down arm or stomach creating visible redness and tearing of skin
Test condition procedures

Bait the room with items he likes to clean and arrange in somewhat disarray. For example, have papers unorganized, have drawers open with items on the ground, etc. Give him 30 s access to the items before session and then begin to block him while providing the prompt, “you can’t clean anymore. It is time to come with me.” If he engages in SIB say, “ok, don’t worry, you can clean” and give him at least one arms length of space for 30 s. Repeat after 30 s.

Control condition procedures

Bait the room with items he likes to clean and arrange in somewhat disarray. Provide him with independent access to the same items with at least one arms length of space the entire time. Ignore any problem behavior if it occurs.
Describe what you would do in the test condition of the functional analysis.
Describe what you would do in the control condition of the function analysis.

I would say it happens randomly but he sure does love his iPad. We can only afford one and sometimes his sister, Sarah, tries to play with him. She’ll sit next to him and sort of look over his shoulder telling him how to play, touching some buttons. You can usually see him start to get annoyed with her and at some point he will explode.

It’s like clockwork. If I am in the other room I’ll hear him scream and before you know it Sarah will get hit and come crying to us. We try to just explain to her that he has autism and that we just need to give him his own time with the iPad.

Describe what you would do in the test condition of the functional analysis.
Describe what you would do in the control condition of the function analysis.
Interview tips:

1. Let the interviewee determine the pace but keep control of the conversation
2. You don’t need to ask every question or go in order
3. You are finished when you know the problem behavior and can arrange the context
4. Be as detailed as possible with relevant information
5. Always keep the analysis structure in mind
6. Ask for descriptions not explanations
The brief observation allows the therapist to:

a) Test some of those hunches from the interview
b) See the topographies of problem behavior first hand
c) Formalize the analysis conditions

Disclaimer: Do not rely on extended periods of indirect observations. Keep it brief and try those contingencies out. Tweak when necessary and go until you are confident in the variables you will be evaluating in your analysis.
Brief observation tips:

1. If you consistently see problem behavior evoked by the removal/presentation of parent described event(s) and problem behavior eliminated by the removal/presentation of parent described consequence(s) move to the analysis

2. Keep the parent in the room when possible for continued input

3. Look for less severe precursors that may not have been mentioned during the interview

4. When in doubt use parents

5. Remember, you’re not trying to cause a problem, you’re trying to understand one
The functional analysis allows the therapist to:

a) Create an understanding of behavior rather than a hunch
b) Hold themselves to the same standards as any medical professional
c) Establishes a baseline from which to evaluate the treatment

Definition: Direct observation of behavior under **two** conditions in which some event is manipulated

**Two Conditions:**

**Test:** Contains the reinforcing contingency thought to maintain severe problem behavior

**Control:** *Does not* contain the reinforcing contingency thought to maintain severe problem behavior
Based on this example how will you arrange your analysis?

a) Two test conditions: One in which I provide him with prompts and give him 30-s of escape contingent on problem behavior. And a second condition where I take away toys and give him 30-s access to the toys contingent on problem behavior.

b) One test condition: I provide him with prompts teaching him how to play with the toy and give him 30-s of escape to independent access to those toys contingent on problem behavior.

c) On test condition: I only test the tangible function because the prompts are related to play and irrelevant.
Hint: How many sushi lovers are there out there?
Now how many of you love sashimi?
For some of you the synthesis of rice and sashimi (i.e., sushi) is a reinforcer whereas the isolated components of rice alone or sashimi alone would not be
“Everytime I try to teach John how to play with the toys appropriately, he starts to throw a tantrum and tries to bite my hand.”

Based on this example how will you arrange your analysis?

a) Two test conditions: One in which I provide him with prompts and give him 30-s of escape contingent on problem behavior. And a second condition where I take away toys and give him 30-s access to the toys contingent on problem behavior.

b) One test condition: I provide him with prompts teaching him how to play with the toy and give him 30-s of escape to independent access to those toys contingent on problem behavior.

c) On test condition: I only test the tangible function because the prompts are related to play and irrelevant.
Final Commitments to a Practical Functional Assessment
Commitment #1
We are committed to an efficient analysis that minimizes assessment time and maximizes treatment exposure
Jessel, Ghaemmaghami, & Hanley (under review)
With this format you don’t need:

- 20 min sessions
- 15 min sessions
- 10 min sessions

You can use:

- 5 min sessions
- 3 min sessions

And still produce clear and consistent results.
Commitment #2
We are committed to a safe analysis that minimizes exposure to potentially dangerous contexts intended to evoke problem behavior.
10. Describe the range of intensities of the problem behaviors and the extent to which he/she or others may be hurt or injured from the problem behavior.

<table>
<thead>
<tr>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High range:</td>
<td>Johnny has hit his sister so hard that she has gotten a concussion before</td>
</tr>
<tr>
<td>Moderate range:</td>
<td>He scratches her daily but it is more manageable than his hitting</td>
</tr>
<tr>
<td>Low range:</td>
<td>The yelling is definitely on the low range but it can get very annoying</td>
</tr>
<tr>
<td>Comments:</td>
<td>Johnny’s hitting is the bad behavior we are most worried about. We hope that you can help us to get him to stop hitting.</td>
</tr>
</tbody>
</table>

Would you:

A) Only include the severe problem behavior of hitting
B) Only include the moderate problem behavior of scratching
C) Only include the non-dangerous behavior of yelling
D) Include A and C
E) Include A, B, and C
Change in Components

- Multiple test conditions → **Single test condition**
- Uniform test conditions → **Individualized test condition**
- Isolated test conditions → **Synthesized test condition**
- Play control → **matched control**
- Only dangerous behavior → **Include non-dangerous behavior**

Applications

Years

- Iwata et al. (1982)
- Iwata et al. (1992)
Replications of the IISCA
(Jessel, Hanley, & Ghaemmaghami, 2016)

**Age and Sex**
1.8 to 30 years old males and females

**Diagnoses**
ASD, PDD-NOS, GAD, ADHD, no diagnosis

**Language Ability**
Non-verbal, 1-word utterances, diffluent sentences, fluent sentences

**Problem Behavior**
Loud vocalizations, disruption, aggression, SIB

**Analyst**
Supervised caregivers, master’s candidates, BCBA

**Settings**
Outpatient clinic, home, school, day habilitation center
Median number of sessions: 5 sessions

Mean analysis duration: 25 min
Remember what a practical functional analysis provides

1. A valid demonstration of the function of behavior

2. A stable and sensitive baseline from which to evaluate treatment

3. A properly motivating set of conditions to teach functional communication AND other important skills like:
   - delay/denial tolerance
   - independent play
   - compliance with adult instructions

And keep in mind...
An effective analysis will lead to an effective treatment
25 additional participants
(Jessel, Ingvarsson, Kirk, Whipple, & Metras, in press)

**Negative Reinforcement**
- Escape from transitions
- Escape from interactive play
- Escape from adult interaction
- Escape from instructions
- Escape from group work
- Escape from parent-selected DVDs
- Escape from adult-direct play
- Escape from blocked access to leisure items

**Positive Reinforcement**
- Access to iPad
- Access to independent play
- Access to interactive play
- Access to child-directed play
- Access to independent work
- Access to child-selected DVDs
- Uninterrupted access to leisure items
Socially Meaningful Outcomes: Over 94% Reduction in Problem Behavior

94% Reduction

95% Reduction

N=25

p < .001

N = 25

Problem behavior per min
Socially Meaningful Outcomes: A 76% Reduction in Parental Concerns

Number of Areas Rated as a Major Concern

Number of Areas Rated as Not a Concern

Intake Discharge

N = 25
Socially Meaningful Outcomes: High Satisfaction in Parental Reports

You found the recommended treatment acceptable
You are satisfied with the amount of improvement seen in tantrums
You are satisfied with the amount of improvement seen in communication skills
You found the assessment and treatment helpful to your home situation

Parent Rating

Not satisfied
Highly satisfied
Developing Skill-Based Interventions
The Treatment Buffet

DRO
Extinction
NCR
DRA
Punishment
Side step #2
What exactly makes a treatment effective?

1. Appropriate reduction in problem behavior
2. Maintenance of effects in typical environment
3. Meets expectations of caregivers, teachers, and clients
4. Improves overall living standards of the clients
How does some of our treatment buffet stack up? 

Consider DRO:

1. Appropriate reduction in problem behavior
2. Maintenance of effects in typical environment
3. Meets expectations of caregivers, teachers, and clients
4. Improves overall living standards of the clients
How does some of our treatment buffet stack up? Consider *Punishment*:

1. Appropriate reduction in problem behavior
2. Maintenance of effects in typical environment
3. Meets expectations of caregivers, teachers, and clients
4. Improves overall living standards of the clients
Four Steps to Creating an Effective Skill-Based Intervention
a) Present reinforcers from FA contingent on a low effort and easy FCR only
b) Present on a continuous reinforcement schedule
c) After mastery of the first FCR build the complexity of the response until it is socially acceptable and recognizable means of communication
d) Final FCR can include: eye contact, seeking communication partner, multiple mands, conversational niceties
“My way”

SR withheld

Simple FCR

SR

Problem behavior

EXT
“My way please”
“May I have my way please”

SR withheld

Complex FCR2 → SR
Complex FCR1 → EXT
Simple FCR → EXT
Problem behavior → EXT
Simple FCRs
4x4 picture icon
“My”
“My time”
“My way”
“My way please”
“Excuse me, can I have my way please?”

Complex FCRs
2x2 icon in binder
“My way”
“My time please”
“Excuse me, my way please”
“Excuse me, may I have my way please?”
“Excuse me, may I have my way please? Let’s play with the [item]”
“Excuse me [name], [name] took my [item]. Could you please help me get it back?”
**Hypotheses:**

Mike engages in meltdowns and aggression in order to:

- Escape from parent-lead tasks to child-directed play

---

**Case Example (Luke, 5 yo, dx: Autism)**

Mahshid Ghaemmaghami, Gregory Hanley, Joshua Jessel, & Robin Landa (in press)

Setting: University Outpatient Clinic
Phase 1
PB reinforced

Phase 2
FCR1 reinforced, PB on extinction

Phase 3
FCR2 reinforced, PB/FCR1 on extinction

Phase 4
FCR3 reinforced, PB/FCR1,2,3 on extinction

Phase 4
FCR3 reinforced, PB/FCR1,2 on extinction

Phase 3
FCR2 reinforced, PB/FCR1 on extinction

Phase 2
FCR1 reinforced, PB on extinction

Phase 1
PB reinforced
• How would you describe his language abilities?
• What simple and complex FCRs would you teach following the functional analysis?

Johnny can say “milk” when he is thirsty or “toy” when he wants his iPad. We heard him say it before but it usually relies on pointing and grunting.
Step 2
Delay/Denial Tolerance Training

a) Teach an appropriate response to denials
b) Reinforce this response as you would any other response you want to strengthen
c) Present reinforcers randomly (50/50) between the complex FCR and the tolerance response
d) Build small delays naturally
What is the face you get when you tell a child no?
We don’t want “no” to become aversive. We want “no” to signal options for getting everything back.
“Not right now”

SR withheld

Complex FCR

Problem behavior

Denial

SR

Tolerance response

EXT

SR

“Ok, no problem”
What is the face you’re teaching children to make after hearing no?
Step 3
Skill Building Training

a) Teach alternative tasks following denials
b) Reinforce this repertoire as you would any other repertoire you want to strengthen
c) Present reinforcers randomly between the complex FCR, tolerance response, and the alternative available tasks
d) Build the delays based on their behavior
“Clean up the toys”

Problem behavior

Complex FCR

Denial

Tolerance response

Task

Compliance

SR withheld

SR

SR

EXT
SR withheld

Emission of FCR

No Delay
  “Sure”

Denial
  “Not Yet”

Okay

Delay +
Demands
  “Not Yet”
  “First do x”

Okay+easy
demands

Okay+medium
demands

Okay+hard
demands

SR delivered
Hypotheses:
John engages in problem behavior in order to:
Escape from instructions to interactive play

Case Example (John, 7 yo, dx: Autism)
Jessel, Ingvarsson, Kirk, Whipple, & Metras (in press)
Setting: Outpatient Clinic

Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Sessions
Problem behavior per min
Session...
**Thinning Levels**
1. Tolerance  
2. 1/1/1  
3. 1/2/3  
4. 3/9/18  
5. 6/18/42  

**Problem Behavior per min**

Simple FCR per min

Complex FCR1 per min

Complex FCR2 per min

**Compliance (%)**

Sessions

Tolerance response per min
a) Remove any signals for
   a) When the reinforcers will be presented
   b) How much work is required
b) Thin reinforcement to more natural/unpredictable schedules
c) Slowly introduce different people, places, things
d) Slowly introduce more difficult and natural instructions
Progressive Increase in Complexity of Instructions

1. Simple motor movements
   - Walk over here, stand up, sit down, clap hands, touch [body part]

2. Simple academics
   - Draw shape, write name, copy what I write
   - Homework/Task preparation
     - Unzip backpack, take out book, erase the board, put books on shelf

3. Complex academic: Reading skills
   - Read paragraph, answer question, sound out words

   Complex academic: Math skills
   - Solve addition/subtraction problem

   Self-help skills
   - Wash hands, do chores

   Play skills
   - Throw/kick ball
Reinforcement is:

- Function-based
- Differential
- Intermittent

The world is a scary and unpredictable place. Make sure you train for that.
Reinforcement is: Function-based
Response requirement is: Variable
Variable in duration
Unpredictable

Complex FCR
“No” Tolerance response Sr
Complex FCR
Sr
Complex FCR
“No” Tolerance response Instruction Compliance Sr
Complex FCR
“No” Tolerance response Sr
Complex FCR
“No” Tolerance response Instruction Compliance Sr
Complex FCR
“No” Tolerance response Instruction Compliance Sr
Complex FCR
Sr
Complex FCR
“No” Tolerance response Instruction Compliance Sr
Complex FCR
“No” Tolerance response Instruction Compliance Sr
Complex FCR
“No” Tolerance response Instruction Compliance Sr
Start with your end goal and work your way backwards
Case Example (Lenny, 8 yo, dx: Autism)
Team: Rachel Metras; Joshua Jessel (supervising BCBA-D)
Setting: Outpatient Clinic

**Hypotheses:**
Lenny engages in aggression, property destruction, and meltdowns in order to obtain:

Escape from academic instructions to access to preferred items

![Graph](image-url)
Parent and teacher end goal:
Lenny needs to be able to sit at a table and do his work independently without the need to of constant one-to-one supervision so the teacher can work with other students.
Backwards Design of Treatment:

5) Independent work completion without supervision
4) Work completion without problem behavior
3) Compliance with instructions
2) Socially acceptable communication for wants and needs
1) Simple communication for wants and needs
Delay & Denial Tolerance Training

Mother
Teacher
Supervision Fading

Problem behavior per min

Tolerance response per min

Compliance (%)

Simple FCR per min

Complex FCR1 per min

Complex FCR2 per min
<table>
<thead>
<tr>
<th>Reinforcement Thinning Steps</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/1/1 instructions</td>
</tr>
<tr>
<td>2</td>
<td>1/2/3 instructions</td>
</tr>
<tr>
<td>3</td>
<td>2/4/6 instructions</td>
</tr>
<tr>
<td>4</td>
<td>4/6/12 instructions</td>
</tr>
<tr>
<td>5</td>
<td>6/8/14 instructions</td>
</tr>
<tr>
<td>6</td>
<td>6/8/14 with 5 s checks</td>
</tr>
<tr>
<td>7</td>
<td>6/8/14 with 10 s checks</td>
</tr>
<tr>
<td>8</td>
<td>6/8/14 with 30 s checks</td>
</tr>
<tr>
<td>9</td>
<td>6/12/15 with 1 min checks</td>
</tr>
<tr>
<td>10</td>
<td>6/12/15 away from table and raise hand when done</td>
</tr>
</tbody>
</table>
Results:
Elimination of problem behavior with the teacher or parent in the classroom and independent completion of work without constant access to preferred items.
Final thoughts

Elimination of problem behavior is attainable
It is attainable without drugs without harsh punishment without hospitalization
It is attainable

With an understanding of why they are engaging in the problem behavior and a treatment focused on building complex functional skills