

**Producing Meaningful Improvements
in Problem Behavior of Persons with Autism**

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



For more information go to:

www.practicalfunctionalassessment.com

Autism New Jersey &
The Autism Society of San Francisco

Webinar
November, 2017

**The aim of the treatment is to restore balance
in the relationships between persons with autism
and their family members and teachers
and without regrettable actions by either**

**With Autism,
there is a higher likelihood
of problem behavior like
meltdowns, aggression, and self-injury**

**Why do restricted “lifestyles”
dictated by problem behavior
persist for many families
with children on the spectrum?**

Restrictive lifestyles persist partly because problem behavior of children is merely

modified
medicated
mollified
micro-analyzed

remedied apart from skill development

Restrictive lifestyles persist partly because problem behavior of children is merely

modified
medicated
mollified
micro-analyzed

remedied apart from skill development

Why does problem behavior occur?

Causes are complex—first consider all of them

Then consider the causes that you can do something about

– For me, those are the consequences of the behavior that serve as reinforcement

Powerful working assumption

If problem behavior is occurring with regularity.....

– it is being reinforced

Antecedent	→ Behavior	→ Consequence
Establishing operation	→ Problem Beh.	→ Reinforcement
Mom attends to Sibling	Throwing toys	Mom's attention
Dad instructs to turn off Ipad	SIB	Dad gives a little more time on Ipad
Teacher instructs to come off swing to do some discrete-trial work	Meltdown	Teacher tries to calm child with reminders of good events & starts to comply with child requests

The one thing at a time model:

An Antecedent → A Behavior → A Consequence
 An Establishing operation → A Problem Behavior → A reinforcer

The shift to the many things at a time model:

Antecedents → Behaviors → Consequences
 Establishing operations → Problem Behaviors → Reinforcers

The one thing at a time model:

An Establishing operation	→ A Problem Behavior → A reinforcer	
Not having looked At phone	→ Lie about needing to pee <i>(maybe, but not likely)</i>	→ Access to the phone to text, chat, etc.
Been looking at phone & text appears from "that guy" you spoke w/ moments ago	→ Lie about needing to pee <i>(more likely, but not inevitable)</i>	→ Access to the phone to text, chat, etc.
Somewhat boring webinar	→ Lie about needing to pee <i>(more likely, but not inevitable)</i>	→ Access to the phone to text, chat, etc.

The shift to the many things at a time model:

Synthesized Establishing operations	→ Problem Behavior	Synthesized Reinforcers
Not having looked at phone for a while and The webinar is somewhat boring and text appears from "that guy"	→ Lie about needing to pee* <i>(most certainly)</i>	→ Escape the webinar and access to text, chat esp. w/ "that guy"

Functional assessment
it is a process

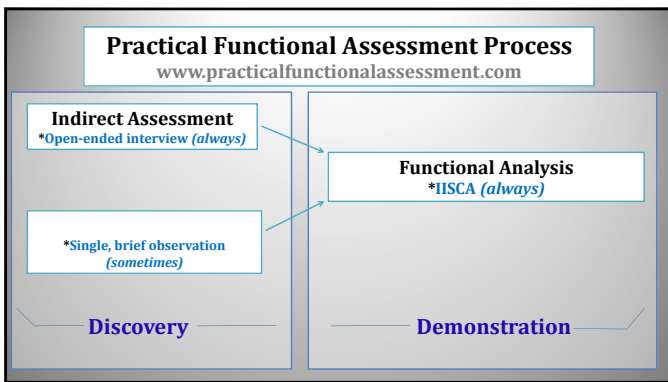
Goal of a Functional Assessment

Identify the consequences that maintain problem behavior

Identify the situations that evoke the behavior

(And, to do so quickly and safely)

In order to treat problem behavior



Case Example: Gail, 3 years old, PDD-NOS

Interview suggested that Gail engaged in meltdowns and aggression....

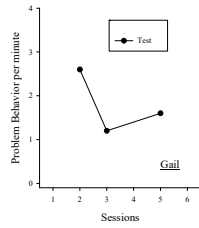
when Mom was attending to other tasks or people....

in order to gain Mom's undivided attention and to have Mom play with her and her most preferred toys.

Functional Analysis: Test Condition

Test: Mom attends to other tasks and people....

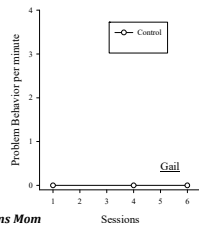
As soon as Gail engaged in any problem behavior, Mom directs all of her attention to Gail while interacting with her and her most preferred toys.



In the test, we are emulating the conditions Mom described as being associated with Gail's problem behavior.

Functional Analysis: Control Condition

Control: Mom directs all her attention to Gail while interacting with her and her most preferred toys the entire time.



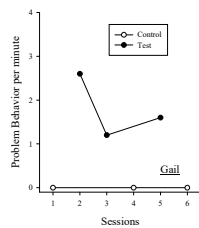
In the control, we are emulating the conditions Mom described as being associated with no problem behavior.

Case Example: Gail, 3 years old, PDD-NOS

By alternating between 5 minute periods of test and control conditions, we were able to turn on and off Gail's problem behavior....

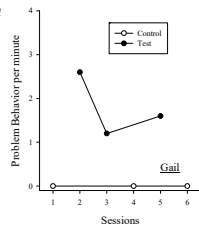
Giving us and her Mom confidence as to why she was engaging in the extraordinary problem behavior

....to simply gain and maintain her Mom's undivided attention and play time



Three important outcomes from the analysis

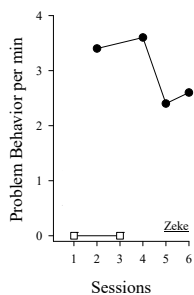
1. *We have confirmed the hunch*
2. *We have a baseline from which to evaluate treatment*
3. *We have a motivating condition to teach Gail skills (and she has learned "the game")*



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
- } **Test**
 } **Control**
 } **Analysis**

An IISCA



Zeke
14-year old boy
Diagnosed with Autism
Engaged in Severe SIB and Aggression
1:1 in Specialized School

Ensuring a Safe Analysis

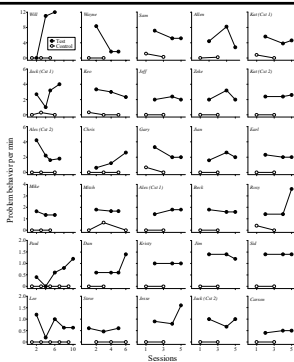
Most important....

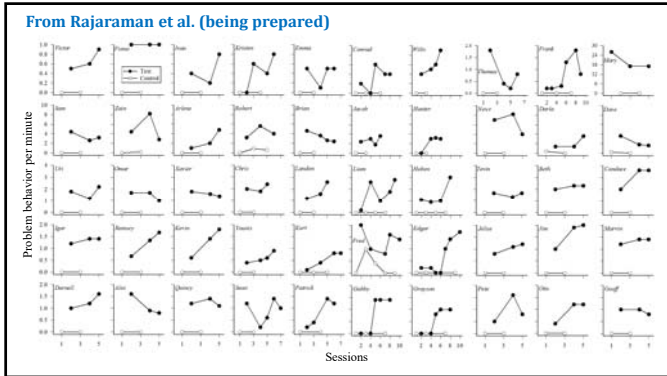
**Immediate delivery
of all suspected reinforcers
for all forms of problem behavior reported to co-occur**

The process of interview then analysis has generality*

and by analysis,
I mean those that
involve synthesized contingencies
informed from open-ended interviews
a.k.a IISCASs

**From Jessel,
Hanley, and
Ghaemmaghami
(JABA, 2016)**





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

- Attention or tangibles** (social-positive reinforcement)
- or **Escape** (social-negative reinforcement)
- or **Sensory/non-social** (automatic reinforcement)

PRESENT: Synthesized (combined) contingencies

- Attention *and* tangibles
- Escape *to* tangibles
- Escape *to* tangibles *and* attention
- Escape *to* automatic reinforcement
- Compliance with mands
- Escape *to* compliance with mands
- Escape *to* access to tangibles, rituals, & preferred conversations
- Etc.....

Case Example (Gail, 3 yo, dx: PDD-NOS)
 Analyst: Nicholas Vanselow
 Setting: Clinic

Why synthesize?
 Isolated contingencies sometimes do not control behavior whereas synthesized contingencies do.

Analysis Comparison (Slaton et al., 2017, *JABA*)

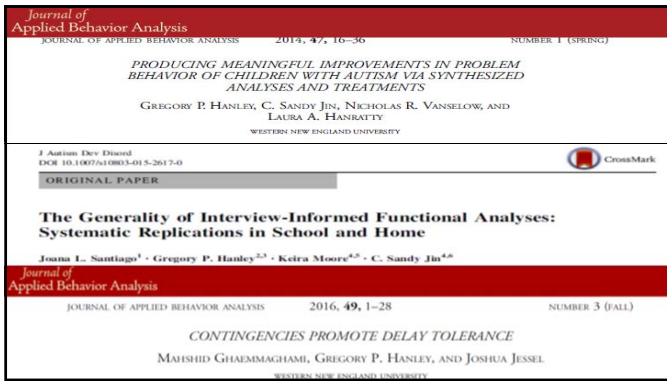
Synthesized **Isolated**

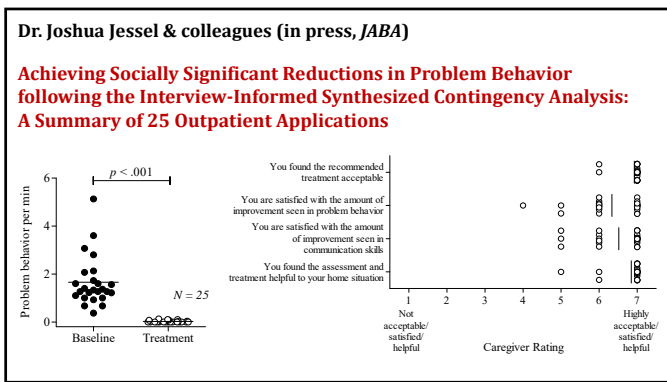
Sometimes both synthesized and isolated reinforcement contingencies influence problem behavior

Analysis Comparison (Slaton et al., 2017, *JABA*)

Synthesized **Isolated** **Synthesized**

But our analyses show, more often, that synthesized reinforcement contingencies influence problem behavior whereas isolated ones do not





For more support to engage this process go to:
www.practicalfunctionalassessment.com

TREATMENT

Functional Analysis

Zeke
14-year old boy
diagnosed with Autism
Engaged in Severe SIB and Aggression
1:1 in Specialized School

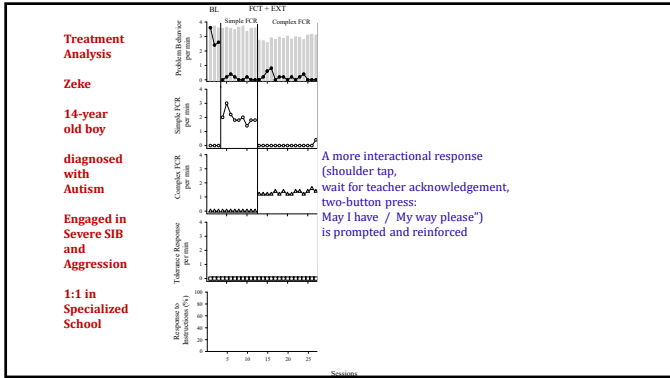
Sessions	Problem Behavior per min
1	0.1
2	3.4
3	0.1
4	3.6
5	2.4
6	2.6

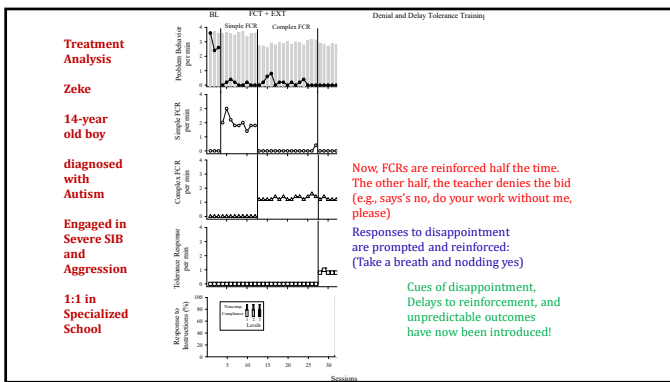
Treatment Analysis

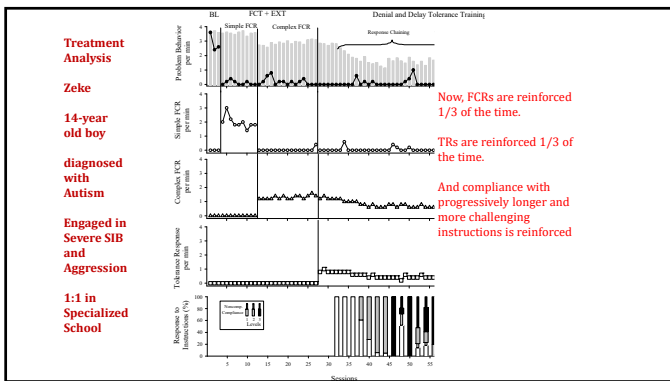
Zeke
14-year old boy
diagnosed with Autism
Engaged in Severe SIB and Aggression
1:1 in Specialized School

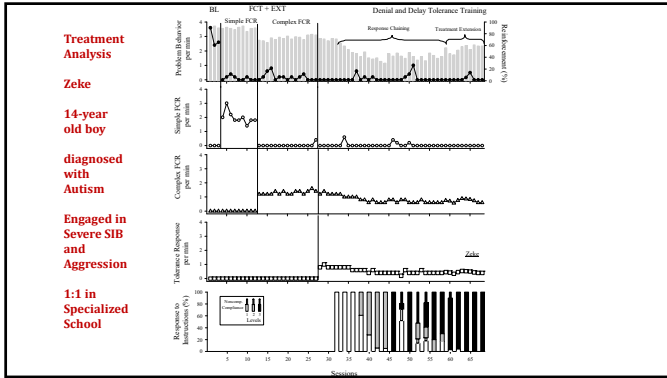
Problem behavior no longer yields the reinforcers (escape to child-directed play and teacher attention)

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





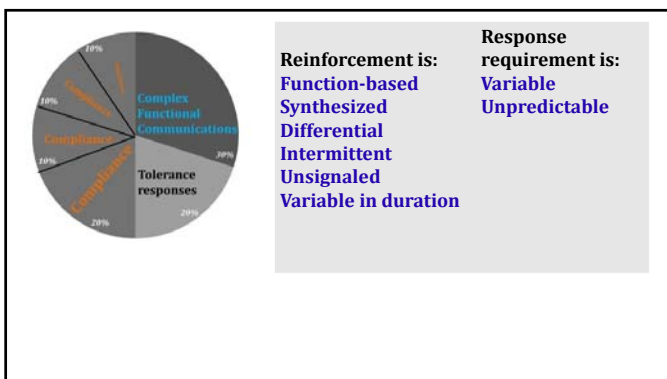




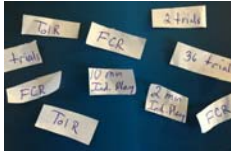
What is the treatment????

Intermittent and unpredictable reinforcement of life skills:

- Functional Communication**
- Delay/denial toleration**
- Compliance**



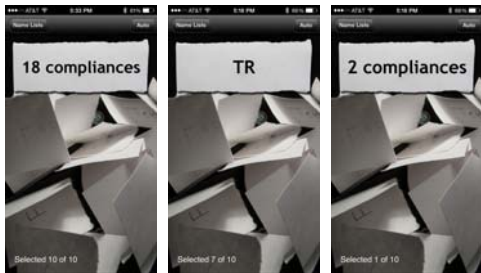
Treatment Implementation



1. Put these in your pocket
2. Pull one out while child is experiencing their reinforcers
3. Keep it to yourself
4. Require that behavior next time

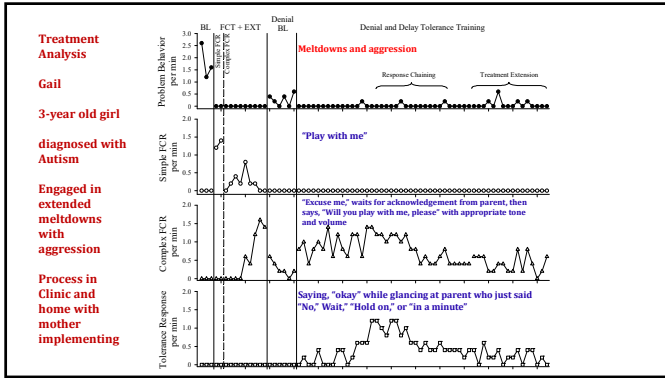
***Materials not needed:**
 Laminate
 Laminating machine
 Glue guns
 Vis a vis markers
 Velcro
 Tokens
 Token boards
 Timers
 Stickers
 Candies
 Anything that was not already in the child's environment!

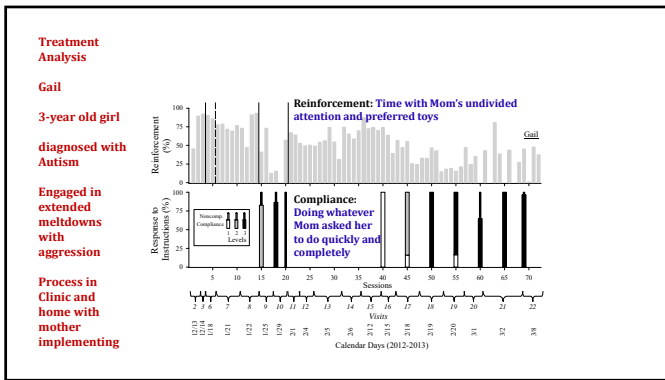
App called "Names in a Hat"



App called "Roundom"







Time Assessment

Steps	# of Visits (if not noted)		Cost (in \$)	
	Range	Mean	Range	Mean
1* Interview	--	1	--	200
2* Functional Analysis	1-4	2.3	166-800	467
3 Functional Communication Training	1-3	2	200-834	400
4 Complex FCT	1-4	2.4	200-860	487
5 Tolerance Response Training	2-7	4.6	300-1400	913
6 Easy Response Chaining	1-5	2.6	200-960	620
7* Difficult Response Chaining	2-11	5.1	400-2240	1,013
8* Treatment Extension	4-9	7.3	800-1800	1,467
Totals:	23-32	27		5,467
Supervision meetings:	16-28	20	1000-1750	1250
Report writing / planning:	--	4	--	600
Grand Totals:			6225-8650	7,217

3. Rate the extent to which you are satisfied with the amount of improvement seen in [redacted]'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 [redacted] and I are very happy with how the whole process took place. We both feel our lives and [redacted]'s quality of life is getting better and better. This was one of the best summers we had with him behavior wise, and best summer ever all because of less behaviors. We actually had day trips to CT science museum, Boston Science Museum and Hampton Beach with 0 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.

Treatment Review

Personalized and **synthesized** reinforcers delivered **intermittently, unpredictably, and exclusively** following various chain lengths of appropriate behavior that includes **communication, toleration, and compliance**

✓ The treatment is implemented in the most challenging context that is sufficiently convenient to repeatedly arrange

- Referred to as the "two Cs" of context

- ✓The treatment process begins by providing **personalized** and **synthesized** reinforcers for each and every problem behavior and then for each and every communication response
 - *Trust is built by arranging for easy responses to reliably and immediately result in all reinforcers*

- ✓The first communication response taught is referred to as the *Simple Functional Communication Response (sFCR)*
- ✓The key features of an sFCR:
 - Simple (Horner & Day, 1991)
 - Novel (Derby et al., 1998)
 - Omnibus ("My way") (Hanley et al., 2014)
 - Can be effectively prompted

- ✓Shaping of the functional communication response continues (Ghaemmaghami et al., 2018)
-until it contains:
 - An obtaining a listener response (e.g., "Excuse me")
 - A generative autoclitic frame (e.g., "May I have ____")
 - A social nicety
 - Proper tone, pace, volume, articulation
- It is then referred to as a **Complex Functional Communication Response (cFCR)**
(e.g., "Excuse me [pause, wait for acknowledgement], May I have my way, please?)

✓The cFCR is sometimes differentiated into specific mands
(Ward et al., 2018)

- An *obtaining a listener* response
- A *break* response
- An *access to preferred toys* response
- An *attention recruitment* response

*(e.g., “Excuse me” [pause, wait for acknowledgement], “May I have a break, please?”
“...May I have my stuff please” “Will you play with me”)*

✓ A tolerance response is then taught
(Hanley et al., 2014; Santiago et al., 2016; Ghaemmaghami et al., 2016)

✓ Now Sr is intermittent and unpredictable

✓ Typical 5-trial sequence in early chaining phase:

<u>Trial 1 Sr:</u>	<u>Trial 2 Sr:</u>	<u>Trial 3 Sr:</u>	<u>Trial 4 Sr:</u>	<u>Trial 5 Sr:</u>
cFCR	TR	cFCR	cFCR	TR

Sr = synthesized reinforcement
cFCR = complex functional communication response
TR = tolerance response

**We just introduced disappointment and ambiguity at the same time—we stay here until there are no negative emotional responses*

✓ Then chaining of contextually appropriate behavior (CAB) and more Sr intermittency and unpredictability follows

✓ Typical 5-trial sequence in early chaining phase:

<u>Trial 1 Sr:</u>	<u>Trial 2 Sr:</u>	<u>Trial 3 Sr:</u>	<u>Trial 4 Sr:</u>	<u>Trial 5 Sr:</u>
cFCR	1hCAB	2eCAB	TR	3eCAB

Sr = synthesized reinforcement
cFCR = complex functional communication response
TR = tolerance response
eCAB = easy contextually appropriate behavior
(e.g., completion of mastered task, play with alternative but preferred materials)
hCAB = hard contextually appropriate behavior
(e.g., accurate completion of challenging math problems, independent play w/ mundane toys)

✓ The average chain length gets progressively longer as success is experienced at each step

Step	Trial 1 Sr:	Trial 2 Sr:	Trial 3 Sr:	Trial 4 Sr:	Trial 5 Sr:	Mean#Rs/Sr	Range
1	cFCR	TR	1eCAB	2eCAB	1eCAB	4.6	3-6
	1eCAB	2eCAB	cFCR	TR	1eCAB	4.6	3-6
2	cFCR	1hCAB	2eCAB	3eCAB	TR	5	3-7
	TR	2eCAB	cFCR	3hCAB	1hCAB	5	3-7
3	5eCAB	cFCR	1hCAB	TR	3eCAB	5.6	3-9
	TR	5eCAB	cFCR	3hCAB	1eCAB	5.6	3-9
4	2hCAB	cFCR	4eCAB	TR	6eCAB	6.2	3-10
	cFCR	6hCAB	TR	4hCAB	2eCAB	6.2	3-10
5	cFCR	5eCAB	3hCAB	7eCAB	TR	6.8	3-11
	3hCAB	cFCR	7eCAB	TR	5hCAB	6.8	3-11
6	TR	10eCAB	cFCR	2eCAB	7hCAB	7.6	3-13
	cFCR	2hCAB	7eCAB	10hCAB	TR	7.6	3-13
7	2eCAB	10hCAB	cFCR	13eCAB	TR	8.8	3-16
	TR	13eCAB	2hCAB	cFCR	10hCAB	8.8	3-16

✓ Typical 5-trial sequence in later chaining phase:

Trial 1 Sr:	Trial 2 Sr:	Trial 3 Sr:	Trial 4 Sr:	Trial 5 Sr:
10hCAB	3eCAB	20hCAB	TR	cFCR

Sr = synthesized reinforcement
 cFCR = complex functional communication response
 TR = tolerance response
 eCAB = easy contextually appropriate behavior
 hCAB = hard contextually appropriate behavior

✓ By last step: Average 10 responses per Sr (range, 3-23)

Some emphases:

- ✓ Progressively increase the average amount of behavior (not just time) required to terminate the delay (Ghaemmaghami et al., 2016)
- ✓ Terminate the delay for various amounts of behavior
(sometimes expect very little behavior, sometimes expect longer or more complex types of behavior during the delay)
- ✓ Probably best to not signal how much behavior is required to terminate the delays

At the end of treatment:

many appropriate behaviors do not yield reinforcement immediately, but *there is no delay to reinforcement per se*

Consider this last practice session....

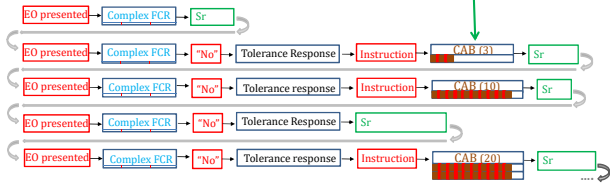
<i>Trial 1 Sr:</i>	<i>Trial 2 Sr:</i>	<i>Trial 3 Sr:</i>	<i>Trial 4 Sr:</i>	<i>Trial 5 Sr:</i>
10hCAB	3eCAB	20hCAB	TR	cFCR

At the end of treatment:
 ✓ many appropriate behaviors do not yield reinforcement immediately, but there is no delay to reinforcement per se

Due to chaining of appropriate responses

And, non-reinforcement of a response (e.g., a mand) induces (-) another appropriate response (e.g., tolerance response) as opposed to problem behavior

✓ The average chain length is progressively increased, but communication, toleration, and short/unexpected contextually-appropriate behavior chains are reinforced sometimes, even at the end of treatment



Shorties never go away.

This way we keep hope alive!

Surprise shorties are a must!

Same treatment can be applied to stereotypy that interferes with learning

with socially meaningful effects.

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

(adapted from Hanley, Jin, Vanselow, & Hanratty, *JABA*, 2014; will be described in Slaton, Hanley, Ruppel, & Gage, in preparation)

1. Teach child to request access to stereotypy

via momentary restriction & contingent access to stereotypy

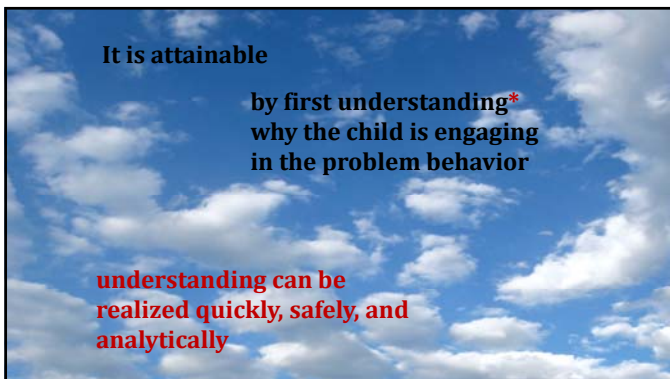
2. Teach child to tolerate denials of mands for stereotypy

via contingent, intermittent, & unpredictable access to stereotypy

3. Teach child to engage in contextually appropriate behavior

via prompting & contingent, intermittent, & unpredictable access to stereotypy





It is attainable

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

*** Communication, Toleration, and Contextually approp. behavior**

It is attainable

when the skills are maintained via unpredictable and intermittent reinforcement

which is probably the same arrangement that generated the various forms of problem behavior

For more information go to:
www.practicalfunctionalassessment.com

Many thanks to my
Practical Functional Assessment and Treatment
 Research and Practice group:

Nick Vanselow, Sandy Jin, Laura Hanratty, Joana Santiago, Mahshid Ghaemmaghami, Joshua Jessel, Jessica Slaton, Robin Landa, Christy Warner, Shannon Ward, Tanya Mouzakes, Adithyan Rajaraman, Ellen Gage, Holly Gover, Kelsey Ruppel, Cory Whelan, David DePetris, & Rachel Metras

For more information go to:
www.practicalfunctionalassessment.com

Questions?
