Functional Behavior Assessment: The beginning of a Function-Based Behavioral Approach to Eliminating Restraint and Seclusion

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Objectives

1. Understand what FUNCTION means
2. Understand the purpose of an FBA and What it is
3. Understand General Behavioral Framework behind an FBA
4. Understand the different types of FBAs and their limitations and appropriate uses
5. Understand variations of an FBA and when it is helpful
6. Understand the general types of treatments and treatment success resulting from an FBA

Behaviors and Their Functions

- **Function-Based Interventions for Behavior**
  - Particularly those that impede someone's learning and success every day in society
  - **Definitely those behaviors that result in seclusion and/or restraint or could eventually**

Behavior is anything dead people can't do

Function(s) – consequences that follow behaviors that maintain it

Whose Problem Is a Behavior?

- Sometimes a problem behavior is not a problem for the person doing it – it pays off really nicely – otherwise – why would they do it?!
- Sometimes a problem behavior is only a problem for the person doing it – it could harm or kill them

Functions are Not Constructs

- Why do people hit themselves?
  - Low self worth?
- Why do adults elope from group homes?
  - Anger?
- Why do juveniles fight in detention?
- Why do children tantrum?

Consequences

- Any event that follows a behavior (in this case, the one you are concerned about)

- **Consequences maintain behavior – not internal causes**
  - To change them, you have to know WHICH consequences, how often they occur, and who, what, where, when, how they get delivered because this is what you have to compete against or eliminate

Function is Motivation

- Factors Affecting Whether a Consequence will Maintain a Behavior:
- How fast it comes after the behavior
- How likely it is after the behavior
- How big it is in relation to the effort required to do the behavior

- Matching Law: There are always competing consequences available for other behaviors that may not be as good as the ones for the behaviors that result in restraint or seclusion.

Restraint and Seclusion – Consequences for Behavior

Not the best, most effective, or humane solution

Restraints can actually be reinforcing (Foxx, 1980 – “Harry”; Smith, Lerman, and Iwata, 1996).

Sending a child to seclusion for screaming in class when certain tasks are presented may reinforce screaming to get out of tasks!

Reinforcers

- Anything can be a reinforcer – pain, etc.
- Don’t assume that just because you think it’s a reinforcer it is – reinforcement is in the eye of the beholder
- Don’t think that because it has been a reinforcer that it will be again!
- Timing, size, and likelihood all matter
- Lots of other reinforcers competing with the consequence you may be trying to use as a reinforcer

Is Communication a Function?

It is the other way around:

- The function of communication is simply to get something, get out of something, or prevent something.
  - The function of a problem behavior may have the same result and is a form of communication since communicating is simply behaving in ways that get things, stop things, or prevent things.

Functions of Behavior

Get Something

Positive Reinforcement

- Tangible
- Automatic/physiological
- Attention
- Aversive Stimuli

Escape/Avoid Something

Negative Reinforcement

- Demands
- Aversive Stimuli

WHY Functional Behavior Assessment?

More Effective – we can target the right skills to teach if we know which ones will help the person get the maintaining consequence(s) a better way or we can simply out-compete them

It Is Humane and Gives Dignity to the Individual – it is essentially "asking" the individual why they do the behaviors that have resulted in so many problems (Hanley, 2012)

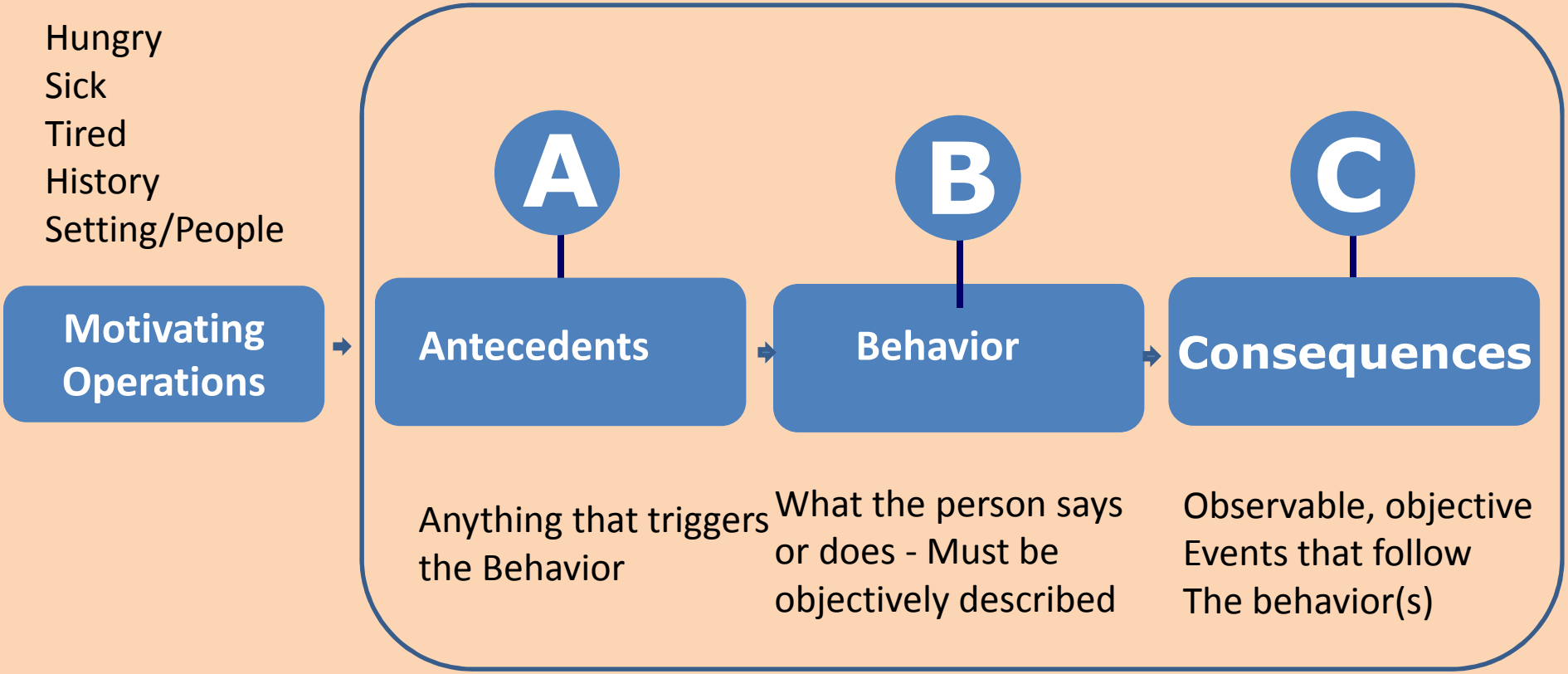
Components of an FBA

1. Operational description of the behavior(s) of concern
2. Reliable prediction and control of the times and conditions when the behavior(s) of concern occur
3. Description of the function(s) of the behavior(s) of concern

Foundation for Functional Behavior Assessment: The Science of Behavior

- All behavior serves a function (or many) – really, all behavior, regardless of its social acceptability, even those that can lead to personal harm and death
- Behavior increases and is maintained by reinforcement (positive and negative reinforcement)
- All behavior exists in the context of the environment (and the environment is everything - behavior is not skin deep)
- Behavior changes when the context changes which means that any component of the 4-term model can change and impact a behavior
- Understanding the function(s) of a behavior leads to better treatments that are more effective and dignified

4-Term Behavioral Lens



These are the only terms that serve as the basis for determining functions of behavior in a functional behavior assessment, not internal states or labels like frustration, sensory overstimulation, depression

Functional Behavior Assessment

- Three Types and they are not equally useful –I am going to tell you to do just one - it's the most effective

  Most commonly done

  - Indirect
  - Direct

  Not Common at all

  - Functional Analysis

Term Clarification

- Functional Behavior Assessment is an umbrella term. It covers: Direct, indirect, and functional analysis

- When people say functional analysis, they don’t mean Functional Behavior Assessment though – they are talking about what KIND of FBA you should do

Lore and Reality for Establishing Behavior Function

Indirect

- **LORE:** Do this first?
- Behavioral Interviews
- Aberrant Behavior Checklist
- Questions about Behavioral Function (QABF)
- Motivation Assessment Scale
- Factional Assessment Screening Tool (FAST)

Direct

- **LORE:** Try this if indirect didn't help you establish the function(s)?
- Direct observation of antecedents, behaviors, and consequences
  - Scatterplots
  - Descriptive analyses
  - ABC Checklist

Functional Analysis

- **LORE:** This is HARD and time consuming – but really good at finding the function(s)
- Systematically manipulate conditions to analyze the function(s) of behaviors of concern – establish CAUSE

REALITY

Indirect

- **Reality:** This is all really unreliable!
- **This is time consuming:** Takes anywhere from 10-20 hours minimum!

Direct

- **Reality:** Try this if indirect didn't help you establish the function(s)?
- **Time consuming**: typically 15-20 hrs of observing
- Being a "Fly on the wall" for 15 hrs enables you to note that every time an individual engages in the targeted behavior – lo and behold people pay attention to it –
- Makes assumption that just because something happens after a behavior a lot, it is likely a cause -

Functional Analysis

- Reality: This takes about the same time – if done right is not all THAT HARD – AND – gets you the valid function(s)
- Systematically manipulate conditions to analyze the function(s) of behaviors of concern – establish CAUSE

Issues with Indirect Assessments

- Lack of clear consistency in antecedents, behaviors, and consequences identified by different people interviewed or completing assessments
- The results are often inaccurate either because people do not remember all the relevant antecedents and consequences or hold back information
- Often miss setting events and other variables that are not always obvious and are often not asked about in interviews of indirect assessment tools.

Direct Assessment

- ABC
- Identify the antecedents, or what happens typically before a behavior and the consequences that follow it
- Scatterplot
- Identify settings, timing, and relevant social and medical history related to behavior (more recent is more critical)

ABC

Antecedents & MOs	Behavior	Consequences
What things happen or conditions exist that reliably precede this behavior?	What does the person say/do? Don't Use Labels or General Terms – focus only on critical problem behaviors, not all	What happens to the student following each of the behaviors? What do they get, or get out of?

Direct Assessment Results

- Conditional probabilities of specific antecedents and consequences for targeted behaviors are used to determine the most likely function(s)
  - Identify which antecedents are more likely to precede the targeted behavior than when it does not occur
  - Identify which consequences are more like to follow the targeted behavior than when the behavior doesn't occur

Issues with Direct Assessments

In one report of functional analysis results compared to initial descriptive analyses of the same behavior(s) that were conducted before the FAs were completed found that the descriptive (indirect and direct combined) accurately identified the same maintaining function for problem behaviors as an experimental analysis in 3 of 12 cases, or 25% of the time.

(Thompson & Iwata, 2007)

Functional Analysis

- Alternate conditions to determine the function of targeted behavior

Alternate Conditions for 5, 10, or 15 minute periods in analog or real setting until function is clear:

There used to be 4 main conditions:

  - Play
  - Alone
  - Demand
  - Attention

Functional Analysis Findings

- Results from various Functional Analyses in key studies indicated that about 70% of targeted problem behaviors were maintained by either attention or escape from demands
  - (Iwata et al, 1982; Iwata et al, 1990)

- The question is WHICH demands are being escaped and exactly what and whose attention is it?

2 Condition Functional Analysis

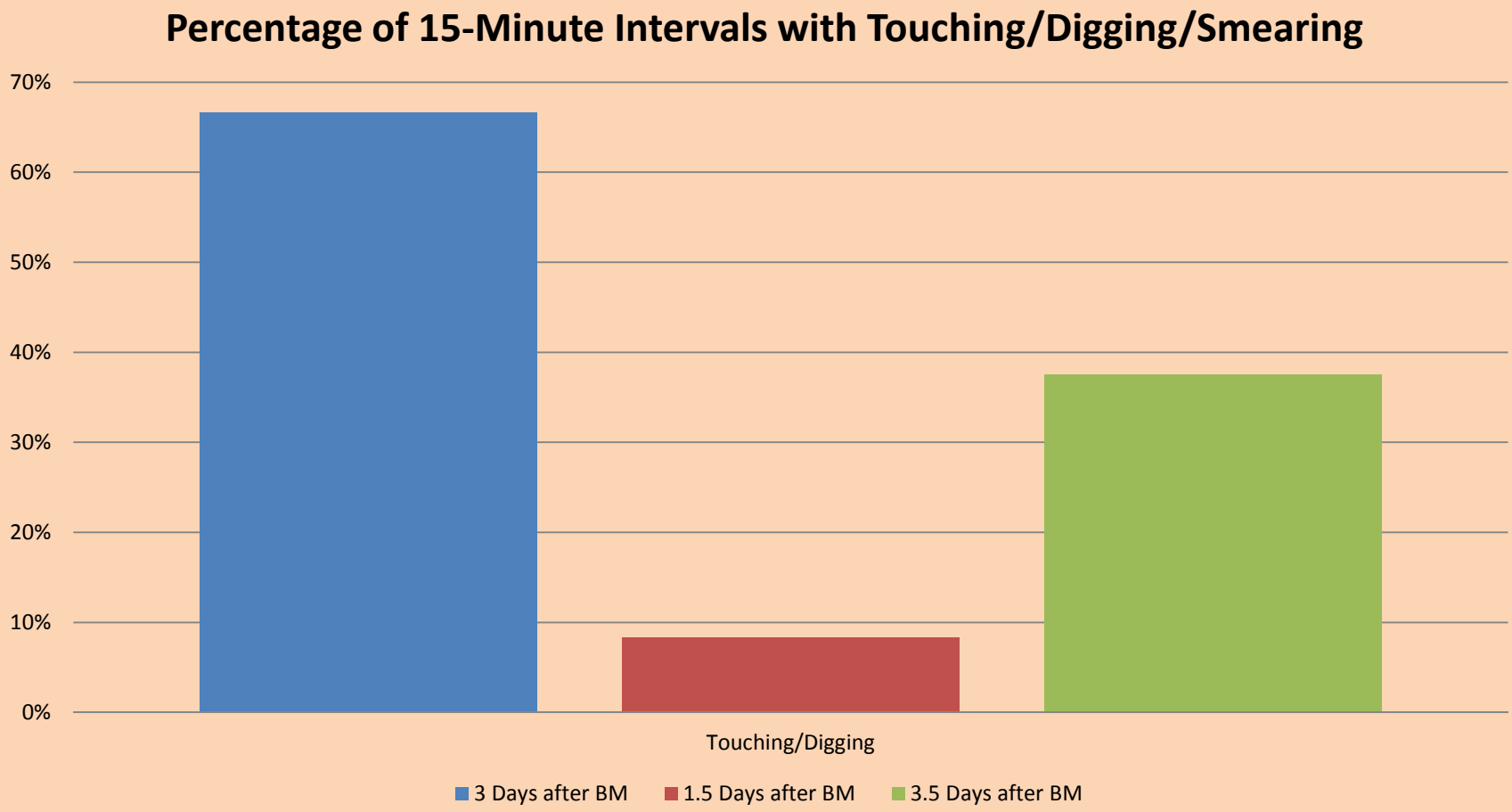
- Recent presentations of ongoing research at last year's conferences (Hanley, 2011; APBA Conference Boston, MA) has focused on using clinical interviews to create 2 Functional Analysis conditions that are more combined rather than just escape or demand alone instead of 4 and running those conditions until a clear pattern indicating function is established.
- Reportedly takes about as long as ABC and direct FBA methods to complete and less time than a full functional analysis takes and has generated interventions that were successful.
- Hanley argued that this should be the new common practice over all direct and indirect methods for FBAs.

Hanley, G. P. (2011, March). *The state of practice of behavior analysis.* Keynote address presented at the 1st Annual Convention of the Association of Professional Behavior Analysts, Boston, MA.

Finding the Function May Lead to Medical Causes

- You may be able to capture naturally occurring systematic manipulations of the environment to help you with your functional analysis
- The case of fecal smearing
- Set up conditions where it is likely systematically and then let the naturally occurring motivating operation (i.e., the thing that you think is making the behavior reinforcing sometimes and not others) occur in a quasi-experimental design

Functional Analysis Data



Intervention Based on Function

- Joint visit with parent to the family Developmental Pediatrician and discuss ways to ensure regular bowel movements
- Treatment
  - Miralax at a set time each day (at dinner) followed by routine with shower and bathroom just before bed (for BM).
  - FCT for need to go to the bathroom
  - Toilet training
- Outcome: smearing, picking, and touching all decreased to ZERO when BMs occurred daily

School Example

- Student tantrums (screams, hits, kicks, runs, grabs, pinches, pulls) when interrupted or prevented from repetitive patterned behaviors.
- Test – block or prevent patterned behaviors every other opportunity and only allow if tantrum occurs, allow it every other opportunity and don't block or prevent.
- Result – 4 tantrums when blocked or prevented – 0 tantrums when allowed to complete pattern
- Intervention: Practice going through common situations and engaging in a different set of behaviors with reinforcement and then offer those reinforcers in real situation and go over new behavior. For some pattern situations such as having to have doors shut in classrooms, we shaped the environment a little each time (door slightly open, then partially open more an more each time he passed it with sometimes being closed to mirror common situations).

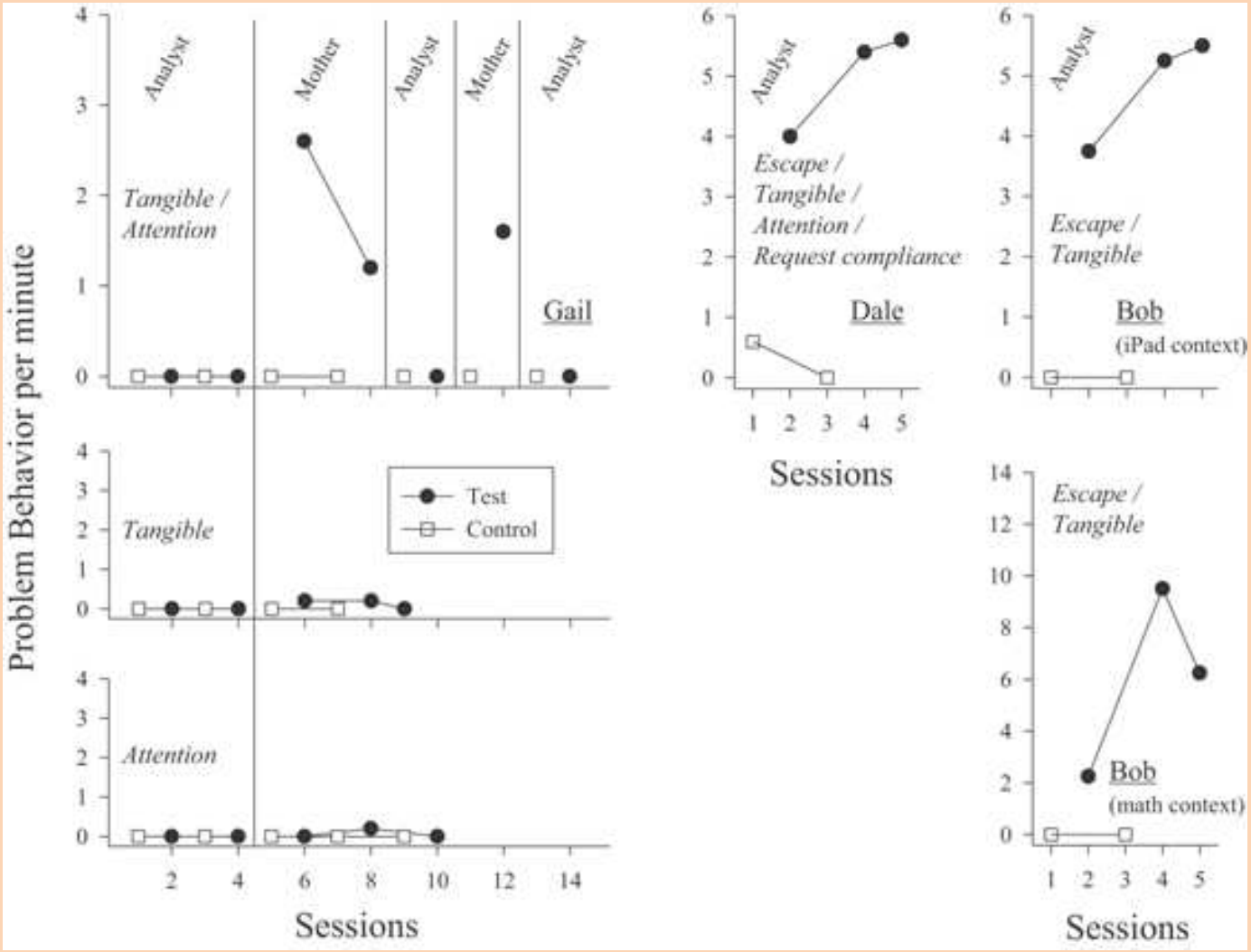
Steps for a Synthesized Functional Analysis (Hanley, et al., 2014)

- Open-ended interviews
  - How well does the person communicate, social skills?
  - Any medical conditions, medications?
  - Single most critical problem behavior (others too)
  - Context in which it occurs (situations, people, etc)
  - Typical responses to problem behavior
- Observation of person to note communication, briefly test notions about removal of or giving items or attention, making certain types of demands, or blocking access and giving access to see what happens
- Set up and Run 5 Minute Conditions to Test Hypothesis about What Consequences Maintain the Behavior
  - Control – provide the reinforcer(s) you think maintain problem behavior constantly throughout the condition
  - Test: set up the triggers and only provide the reinforcer(s) you think maintains the behavior if the behavior occurs

Example from Hanley et al., 2014

- Parents turned attention from child during toy play and problem behaviors occurred or a preferred toy was removed and problem behaviors resulted.
- Evaluated simultaneous access to a tangible item (the toy) and attention (parent attention while playing).
- Test Condition: remove the toy and attention at the same time every 30 seconds and only provide both again if problem behavior occurs
- Control: provide continuous access to the toy and attention (talking to the child while they played and even contributing to play with the toy).

Producing meaningful improvements in problem behavior of children with autism via synthesized analyses and treatments



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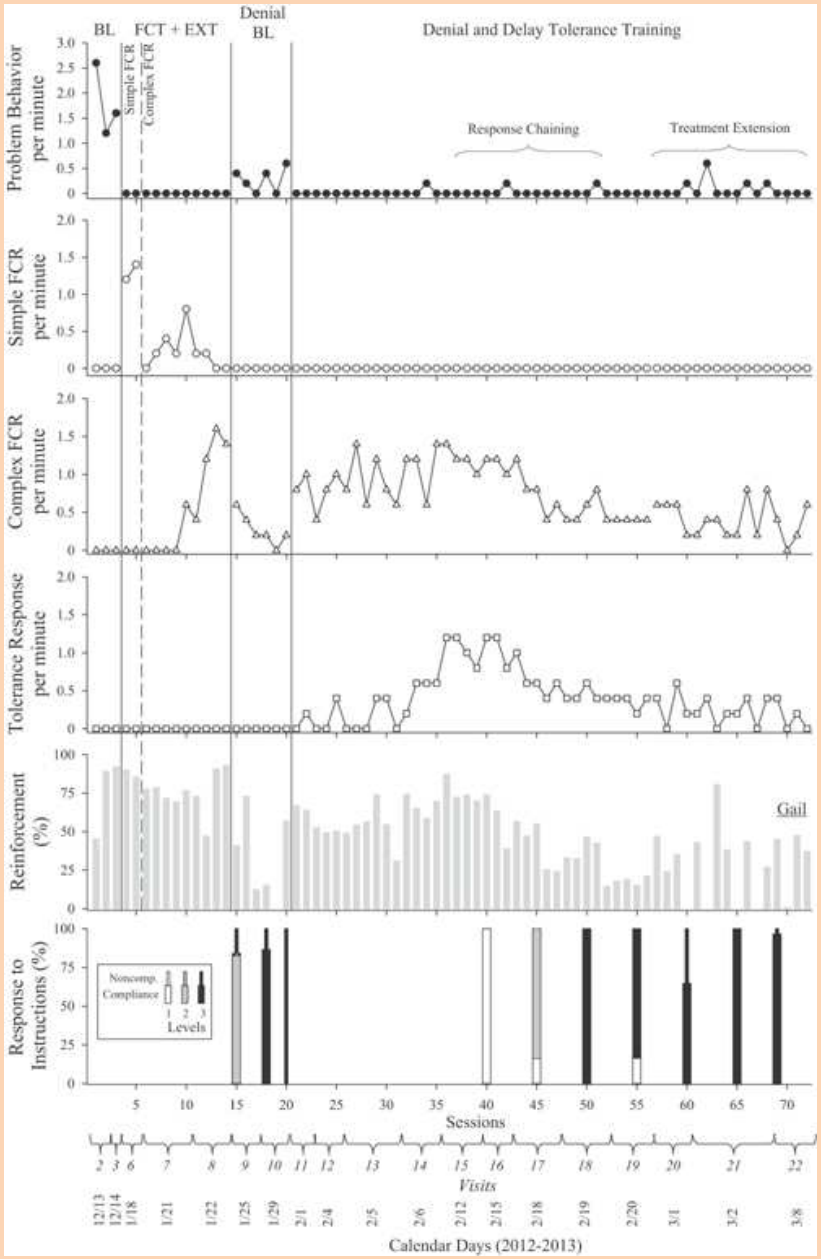

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Variations on FAs

- Compare demands for difficult tasks and easy tasks in the demand condition as well as different types of tasks (Roscoe et al., 2009)
- Target precursor behaviors in cases where the target behavior is such a safety risk that evoking it is not ethically possible such as severe self-injury (Nadjkowski et al., 2008)
- Compare different types of attention in the attention condition (Kodak, Northup, and Kelly, 2007)
- Compare attention condition with and without preferred leisure items present

Limitations of Functional Analyses

- FAs are training intensive. Generally Behavior Analysts (BCBAs) are the ones well enough trained to do them – there is evidence that we can train others to do them well, but it is hard to do that

Real-Time Functional Analyses

- Occurs in classroom or in the home or setting where the person typically lives, works, or plays during the normal routine
- Sets up conditions to go with the routine and cues the person responsible for the person and others in the setting on what to do during the upcoming condition and when to stop.
- Conditions last 5 - 10 minutes or in some cases can be just a simple case of doing something and seeing if the behavior occurs followed by doing something different and seeing if it happens then rather than doing something for 5 minutes
- Staff implements at times when the behavior is typically reported to be occurring and combines the conditions to fit real world scenario for what triggers and what follows the critical targeted problem behavior
- Alternate 2 to 4 conditions based on clinical interviews on the behavior
  - E.g., demands/alone or play/attention
- Collect data on target behavior(s)
  - Can use ABC Data Pro on an Itouch, Iphone, or Android Device

Impact of Functional Assessments

Interventions created without a functional analysis produced reductions in self-injury from 47%-61%

When the same interventions were used after a functional analysis, self injury was reduced by more than 80%

Kahng et al. (2000)

Functional Analysis Best Practices

(Hanley, Iwata, and McCord, 2003)

- Limit response classes to one or a few behavior topographies
- Program consequences for the occurrence of target behaviors
- Incorporate EO influences before and during assessment
- Include SDs to facilitate discrimination of test conditions
- Conduct relatively brief (e.g., 10-min) sessions
- Include tests to identify behavior maintained by automatic reinforcement
- Consider relative reinforcement durations when interpreting analysis results
- Test for functional relations between problem behavior and tangible reinforcement only when preliminary assessment information suggests a relation might exist
- Start brief and simple (i.e., arranging common test conditions) and progress to more lengthy or complex assessments as needed
- Use other sources of information (e.g., open-ended interviews and observations) as adjuncts to structure the more complex analyses.

Treatments Based on FBAs

- Generally involve one or more of the following:
  - **Differential Reinforcement:**
    - Reinforce new or competing behaviors that are appropriate – may involve teaching a new behavior if it is not already occurring for the person
  - **Extinction:**
    - Remove the maintaining consequences for targeted problem behaviors
  - **Non-Contingent Reinforcement**:
    - Remove the need to engage in targeted problem behaviors to get the consequence(s) that maintain it by simply providing the maintaining consequence(s) on a schedule without the behavior occurring

Current Best Practices

- Base Intervention on Function(s) from FBA Results
- Focus on positive reinforcement and competing contingencies
- Focus on teaching and reinforcing replacement behaviors
  - Replacement behaviors can either serve the same function or compete with the targeted problem behavior to tip the balance in favor of more socially appropriate behaviors.
    - There is some evidence that focusing only on functionally equivalent behaviors could lead to reoccurrence of problem behaviors over time so sometimes is may be better to tip the balance of consequences in favor of a new behavior that trumps the reinforcing value of the problem behavior
- Punishment components may still be needed in some treatment plans if opportunities to engage in the problem behavior cannot be prevented
  - RIRD (Response Interruption and Redirection)
  - Increasing Response effort for targeted problem behaviors

    used with differential reinforcement when new behaviors and environmental manipulations are not enough to reduce severe target problem behaviors to zero (e.g., dangerous self-injury).

A Note on Punishment

Descriptive:

- a penalty inflicted for an offense, fault, etc; rough treatment

Functional:

- Any consequence that follows a behavior that decreases the likelihood of that behavior in the future
  - Blocking and redirecting problem behaviors followed by a decrease in those behaviors is punishment
  - Increasing response effort followed by decreased responding is punishment

Trend Toward Positive Approaches

- Since Functional Analyses started becoming common practice in the research literature for applied behavior analysis, the proportion of research on interventions to reduce and eliminate self-injury and aggression focused on positive reinforcement rather than punishment has increased substantially

(Pelios et al., 1999)

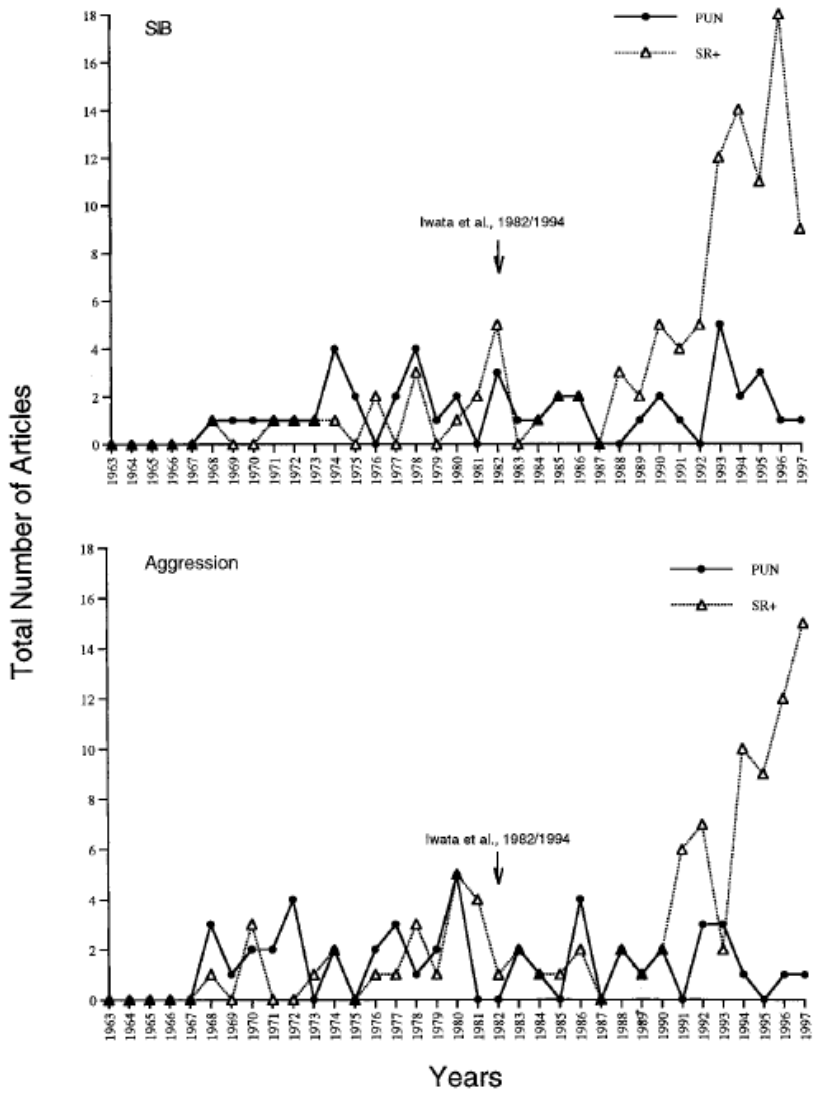

Figure 1. Total number of articles published on treatment of self-injurious and aggressive behavior with reinforcement- and punishment-based procedures.

(Pelios et al., 1999)