

# Reversal Designs

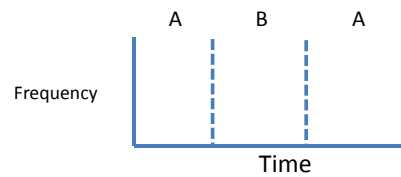
## Overview

- One of the most important designs you can use
- Can be used in a variety of settings
- Can be very powerful in detecting changes

## Reversal (ABA) Designs

- Repeated measures of behavior occur in a given setting
- Requires at least 3 consecutive phases:
  - Initial baseline (A)
  - Intervention (B)
  - Return to baseline (A)

## ABA / Reversal Design



## ABA Overview

- A Baseline session
- B Intervention
- A Remove intervention and return to Baseline

## Characteristics

- Initial A (Baseline) session
  - Behavior must be stable.
  - Implement intervention when the behavior is stable
  - Need to worry about reactance

## Intervention Phase

- Implement ONLY after the baseline is stable
- Intervention can be anything
  - Single variable
  - Multiple variables
- Examine what the behavior does
  - Goes up
  - Goes down
  - Remains the same
- If you are wanting the behavior to decrease (acting out) and the behavior increases may want to remove the intervention

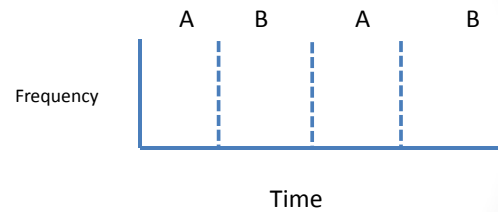
## Points to Note:

- Is a very powerful design
- Can immediately observe behavior changes
- Can immediately remove the intervention if necessary

## A-B-A-B Reversal Design

- Is preferred over A-B-A as stronger demonstration
- Very powerful non-experimental within-subject design
- Can strongly demonstrate a functional relation between an environmental manipulation and a behavior

## ABA Design with Reversal



## Logic of Reversal Design

- Involves replication
- Independent variable is responsible for behavior change if repetition of baseline and treatment phases approximate the original phases

## Variations of the A-B-A-B Design

- Repeated reversals
- B-A-B reversal design
- Multiple treatment reversal designs
- NCR reversal technique
- DRO reversal technique
- DRI/DRA reversal technique

## Repeated Reversals

- A-B-A-B-A-B
- Replications present more convincing demonstration of functional relation
- Usually do not need
- Can become redundant

## B-A-B Reversal Design

- Doesn't enable assessment of effects prior to the intervention
- May get sequence effects
- May be appropriate with dangerous behaviors
- Addresses ethics of withholding effective treatment
- Need to be careful when using

## Multiple Treatment Reversal Designs

- To compare effects of two or more experimental conditions with each other or baseline
- Can make design decisions based on on-going assessment of data
- Vulnerable to sequence effects
- i.e., A-B-A-B-C-B-C, A-B-C-B-C-B-C
  - B essentially becomes the baseline
- Often creates lots of problems

## NCR Reversal Technique

- Non-contingent reversal
- Deliver NCR on fixed or variable schedule independent of the behavior
- Allows you to demonstrate the effects of contingent reinforcement
- Useful when not possible to eliminate activity used as contingent reinforcement

## Points to Note:

- Advantages:
  - Clear demonstration of functional relationship
  - Quantifies amount of behavior change
  - Shows need to program for maintenance
- Disadvantages:
  - Irreversibility
  - Social, educational, and ethical concerns

## Other Issues

- Is not appropriate when independent variable cannot be withdrawn
- Sometimes level of behavior from earlier phase cannot be reproduced again under the same conditions
  - If suspected, consider DRO or DRI/DRA as controls or multiple baseline designs

## Withdrawing Effective Interventions

- Can be problematic
  - Social concerns
    - Must get full support of everyone involved
- Educational and clinical issues
  - Reversal phases can be very short
  - For ethical reasons, withdrawal of intervention may not be appropriate in harmful situations

## Final Points

- Are very powerful designs
- Can be combined with other designs
- Big advantages:
  - Get almost immediate feedback about the effectiveness of your intervention
  - Person is their own control
- Can be used almost anywhere and with any type of intervention.