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**

```
A   B   A   B
```

Frequency

Time

**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

- 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 ongoing 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.