All experimental designs, including single-case designs, use a logic of planned comparisons: comparing at least 2 experimental conditions (their effect on a dependent variable[s]).

All single case designs are variations of using A and B phases (conditions) to make planned comparisons.

A = baseline; B=some type of intervention

Replication is used to control for threats to internal validity.

**A-B design is the most basic single case design.**

It is not an experimental design and cannot be used to demonstrate a functional relation. Can only provide "weak correlational conclusions".

It is useful for clinical and educational settings.

**Azrin & Wesolowski (1974)**

What are the strengths and the weaknesses of this study and its design?

| Series 1 | Simple correction | Theft reversal |
| 1 | 20 | 25 |
| 2 | 15 | 20 |
| 3 | 10 | 15 |
| 4 | 5 | 10 |
| 5 | 0 | 5 |

Number of Stealing Episodes

Age (months)
**An A–B–A design is the minimum experimental design (demonstration of causality).**

Would this design meet WWC evidence standards? Why? Why not?

Christle & Schuster, 2003

**An A–B–A–B design is the preferred design because it:**

- Demonstrates a functional relation when the DV returns to baseline levels when the intervention is withdrawn
- Permits 3 demonstrations at 3 different points in time
- Ends on a successful/beneficial note

**Ethical and practical questions to consider when deciding to use a withdrawal design:**

- Can the target behavior (DV) be reversed?
- Is it ethical to do so?

A-B-A-B DESIGN

Figure 3. The percentage of patrons wearing safety belts across four phases: baseline (A), personal prompt (B), baseline (A), and personal prompt (B).
The effects of a vitamin supplement on the pica of a child with severe mental retardation
Gary M. Pace and Edward A. Toyer

Latency in seconds

A-B-A-B-C

Treating aerophagia with contingent physical guidance
Garcia, Starin, & Churchill (2001)

Evaluation of an awareness enhancement device for the treatment of thumb sucking in children
Stricker, Miltenberger, Garlinghouse, Deaver, & Christopher A. Anderson (2001)

Consider these in implementing a withdrawal design:

- Data in each phase must demonstrate stability before moving to next phase.
- Conditions must be re-introduced and effects replicated in a similar manner.
- Should have a plan to minimize sequence effects.
Summary of Withdrawal Designs (Richards et al., 1999)

**Appropriate to Use When:**
- A clear functional relationship between IV and DV needs to be demonstrated
- Target behavior can be reversed with IV is withdrawn
- IV is such that its effects are not present on the DV after the IV is withdrawn
- It is not unethical to withdraw the intervention

**Not appropriate to Use When:**
- DV is not reversible
- Treatment effects will continue after IV is withdrawn
- It isn’t educationally/clinically desirable for the target behavior to return to baseline levels
- Withdrawing effective treatment (IV) would be unethical (e.g., dangerous behavior)

Coming Up
Week 9

Discuss Multiple Baseline and Multiple Probe Designs. What kind of research questions are they best used to address? Strengths? Weaknesses?

**Guest Speaker:** Dr. Ann-Marie Orlando

**Read:** Gast Chapter 11 Ross & Horner (2009); Ledord et al. (2008).

**TURN IN:** Take Home Quiz 1