


# Internal Validity



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The degree to which the study demonstrates that the treatment *caused* a change in the behavior

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How Do You Get \_\_\_\_\_ Validity?

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\_\_\_\_\_ Design

- Randomly place people in one group or another group
- Treat both groups exactly the same, EXCEPT...
- One aspect differs between them (e.g., drug, type of therapy, experience)
- If the groups behave differently, you conclude that the aspect they differ on is causing the change in the outcome

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\_\_\_\_\_ Design

- Find a group of people and assess their level of a variable (e.g., depression)
- Introduce a treatment, drug or experience
- Make sure nothing else in their lives has changed
- Assess their level of the variable after they receive the treatment

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\_\_\_\_\_ Challenges to  
\_\_\_\_\_ Validity

- Must show that variations in the cause leads to variations in the outcome
- Variations in the cause must come prior to examination of changes in the outcome
- Must establish that the aspect that differs between the groups is the only thing they differ on (i.e., get rid of extraneous factors)

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### What Problems Might Occur?

- People are NOT randomly placed in conditions
- The groups differ on an aspect other than the one the researcher has set up
- Both are sources of **error variance** in the outcome

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Groups differ between each other before the study began

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### Problems

- Self-selection: Participants choose
- Researcher selection
- Arbitrary selection
  - First 50 to arrive = group 1
  - Second 50 to arrive = group 2

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Choosing groups that have identical characteristics, based on assessments taken prior to the experiment

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### Problems

- No two people are identical
- There are too many variables to account for
- Every test has limits
- Will rarely get the same people at Time 1 as you had at Time 2 (people drop out)
  - "mortality" (aka. "attrition")
- Identical groups can change at different rates afterwards
  - "selection by maturation interaction"
  - The groups are predisposed to grow apart prior to treatment
- Extreme levels at Time 1 move toward the middle at Time 2
  - "regression toward the mean"

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### Problems with \_\_\_\_\_ Designs

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**Reasons Why**  
\_\_\_\_\_ **Change**  
**from Time 1 to Time 2**

- People's state of mind changes  
– “\_\_\_\_\_”
- Something in the environment changes  
– “\_\_\_\_\_”
- They're tipped off by your measurement  
– “\_\_\_\_\_”

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**Reasons Why**  
\_\_\_\_\_ **Change**  
**from Time 1 to Time 2**

- Measured differently from one time to the next  
– “\_\_\_\_\_”
- Started off at the extreme, influenced by random error (e.g., luck)  
– “\_\_\_\_\_ *toward the mean*”
- Not looking at the same number of people  
– “\_\_\_\_\_”

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**Review: The 8 Threats to**  
**Internal Validity**

- Selection
- Selection by Maturation Interaction
- Regression toward the mean
- Mortality
- Maturation
- History
- Testing
- Instrumentation

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