

Slide 1

**SPHSC 569:  
Independent Variables**

Identification and  
Definition

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Slide 2

**Three Types of  
Independent Variables**

- Subject/Participant or Organismic Variables
- Environmental or Situational Variables
- Instructional Variables

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Slide 3

**Subjects**

- Target Population
  - Clinical and demographic characteristics
- Accessible Population
  - Geographic and temporal characteristics
- Intended Sample
  - Feasibility
  - Optimize results

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Slide 4

**Subject Selection**

- Inclusionary Criteria
  - What characteristics are required
  - Be specific
- Exclusionary Criteria
  - Of those who meet inclusionary criteria, who should be eliminated
  - Be parsimonious
  - Enhance feasibility; reduces generalizability

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Slide 5

**Subjects: Major Criteria**

- Diagnostic label from a known source (e.g., DSM-Diagnostic and Statistical Manual of Mental Disorders, FAS-DPN)
  - Agreed upon definition and large body of descriptive literature to support
- Cut-offs on reliable and valid tests/instruments

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Slide 6

**Subjects:  
Other Characteristics**

- Personal Characteristics
  - Age
  - Gender
  - Family Situation
  - SES
  - Diagnosis
- Behavioral Characteristics
  - Current language/communication skills
  - Current cognitive, social, emotional, motor, self-help, etc. related to diagnosis

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Slide 7

**Subjects:  
Other Characteristics**

- Medical/Developmental Characteristics
  - Medical history (medications)
  - Neurological status
  - Developmental history
  - Sensory status
  - Social/Emotional
  - Behavioral
  - Motor
- Experiential Characteristics
  - Educational background
  - Vocational background
  - Previous therapy-time, duration, degree of success

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Slide 8

**Environmental or  
Situational Variables**

- Conditions that alter the environment or situation in an experiment
- Variations in what is done **TO**, **WITH** or **BY** the participants

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Slide 9

**Environmental or  
Situational Variables**

- May consist of:
  - Treatment vs. no treatment
  - Treatment A vs. Treatment B)
  - Providing different amounts of treatment (strength) at different points in time
  - Changing length of treatment
  - Providing qualitatively different conditions (integrity) at different points in time (variation in antec., conseq. or reinf. sch.)

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Slide 10

**Instructional Variables**

- Specific type of environmental or situational manipulation

Variation in what participants

- are told
- are led to believe through verbal or written statements about the experiment and their participation

Instructional variables are usually aimed at altering the participant's perception or evaluation of a situation or condition

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Slide 11

**Behavioral Approaches**

- Increasing Behavior
  - Reinforcers
    - Social/verbal
    - Tokens/points
    - Tangibles
  - Reinforcement Schedules
    - Fixed
    - Intermittent
- Decreasing Behavior
  - Extinction
  - DRO – Differential reinforcement of other behavior
  - TO – time out from positive reinforcer
  - Response cost, over correction, fines, restrictions
  - Physical Pain

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Slide 12

**Behavioral Approaches**

- Fading Instructor Assistance (Billingsley)
  - Increasing Assistance (least to most prompts across trials)
  - Decreasing Assistance (most to least prompts across trials)
  - Graduated Guidance (within trials)
  - Time Delay (natural + prompt)
  - Antecedent Prompt and Test
  - Antecedent Prompt and Fade

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Slide 13

Threats to Validity of Tx  
(Or Sources of Confound)

Consider:

- Treatment
- Therapist
- Subject

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Slide 14

Importance of Precision  
in Defining Independent  
Variable

- “Provide operational definitions of the independent variable appropriate to the study’s theoretical and philosophical orientation” (LeLaurin & Wolery)

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Slide 15

Define Critical Features  
of the Treatment

- Determine schedule of implementation
- Identify and define **critical** events/behaviors comprising the intervention (clinician/instructor performance; client performance)
  - Quantify these components
  - Pace/intensity of components
  - How often (minutes)
- Identify and define efforts to insure “focus” or behavioral control
- Develop a manual

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Slide 16

Define Critical Features  
of the Treatment

- How controlled do you need to be in the delivery of treatment
- Procedural Reliability

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