

PSY 303
Research Methods

Winter 1987
UH 11:00-12:20

COURSE INFORMATION

Instructor: Dr. Elizabeth Schaughency
Office: 395 Straub
Phone: X3936
Office Hrs: UH 2:30-4:00 and by appointment

Required Handbook: "Gernsbacher's Handbook for Psychology 303" available at EMU printshop (breezeway)

Grading: Course grades will be based upon performance on out-of class assignments, projects, an in-class oral presentation, and class attendance & participation, as follows:

Assignments 1-3	10 pts. each	5% each
Mid-term Lit. Review	50 pts.	25%
Outline of Proposal	30 pts.	15%
Presentation of Proposal	30 pts.	15%
Final written Proposal	50 pts.	25%
Class attendance & Participation	10 pts.	5%
	<hr/> 200 pts.	<hr/> 100%

Of the 200 points, anyone earning:

A total of 180-200 points will receive an	A
A total of 160-180 points will receive a	B
A total of 140-160 points will receive a	C
A total of 120-140 points will receive a	D
Less than a total of 120 points will receive	
an	F

Based on the actual distribution of final grades, this criterion might be relaxed, but not stiffened.

Late Assignments: Assignments are due at the beginning of class on the date due. Assignments will be accepted up to 24 hours after the date due, but one point will automatically be subtracted. No assignments will be accepted after 24 hours past the due date.

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<u>Date</u>	<u>Lecture Topic</u>
1/8/87	Introduction; Purpose of Course; Definition of Hypotheses; Definition of Operational Def.; Definition of IV, DV
1/13/87	Ruth South - Introduction to Library
1/15/87	Threats to Internal Validity; <u>Assignment 1 due</u> ; Identify hypotheses, IV, DV
1/20/87	Threats to External Validity
1/22/87	Types of Research Designs; <u>Assignment 2 due</u> ; Identify threats to internal and external validity
1/27/87	Types of Research Designs
1/29/87	Critiquing an article; <u>Assignment 3 due</u> ; Identify research design; Summarizing the literature; Identifying where we go from here; APA style
2/3/87	Ways to collect data: 1) Naturalistic assessment: a) archival research, b) observational data
2/5/87	Ways to collect data: 2) Analogue assessment
2/10/87	Ways to collect data: 3) Self-report data
2/12/87	Testing Hypotheses; Literature Review due
2/17/87	Ethical Issues in Research; parts of a research proposal
2/19/87	Meet with instructor; go over research ideas
2/24/87	Meet with instructor; go over research ideas
2/26/87	Giving a presentation; <u>Assignment due</u> of outline of proposal
3/3/87	Student presentations
3/5/87	Student presentations
3/10/87	Student presentations
3/12/87	Student presentations

Proposal due day of scheduled final exam -- Monday, March 15, at 3:15 pm

HYPOTHESES, INDEPENDENT AND DEPENDENT VARIABLES

HYPOTHESIS: A statement of the investigator's idea about the relationship between the phenomena under study.

General Hypothesis: The statement of this relationship as it occurs in the real world.

Experimental Hypothesis: A specific testable hypothesis in which the phenomena are operationally defined. It is the investigator's prediction of the results of the study.

Operational definition: Defines a concept, phenomena solely in terms of the operations used to produce and measure it.

Independent Variable: The factors, phenomena that the investigator controls or manipulates in order to determine their effect on behavior

Dependent Variable: The measures of phenomena that are used to assess the effect(s) (if any) of the independent variables.

Thus, the independent and dependent variables are the operationally defined phenomena under study, and the experimental hypothesis is the researcher's statement about the predicted relationship between the independent and dependent variable.

ASSIGNMENT I: Due 1/15/87

Locate a research article on a topic of your choice published in a psychological journal. Identify the (1) general hypothesis, (2) experimental hypothesis, (3) independent variable(s), and (4) dependent variable(s). Submit a copy of the article, along with your assignment.

ASSESSMENT OF SUSTAINED ATTENTION AND DISTRACTION IN CHILDREN
USING A CLASSROOM ANALOGUE TASK

Prinz, Tarnowski, & Nay (1984)

Threats to Internal Validity:

1) History:

During experiment: An event occurring during some experimental session(s) which distracted a child.

e.g. someone laughing, talking in the hall; if the experimenter had to leave the room, sneezed, etc.

Outside of the experiment: A child experiencing some kind of stress which interfered with his/her concentration

2) Maturation: Children becoming tired during the course of the experiment, interfering with their concentration

3) Testing: Experience on the Span of Apprehension and/or CPT effecting performance on the ANALOGUE task

4. Instrumentation: Observer drift: Observers changing their criteria over the course of the experiment

Callibration: Technical drift of the instrumentation of the CPT and Span of Apprehension.

5. Statistical Regression: Not applicable

6. Selection bias: Non random group placement.

7. Attrition: Subjects not returning for session 2 (No info.)

8. Diffusion or imitation of treatment: Elements of the distraction condition appearing in the no-distraction condition; inappropriate group placement.

9. Combination of Selection and History:

Some factor associated with ADD/H (i.e. group placement) which could effect performance on DVs other than "attention" (e.g. learning disabilities, failure experiences, perceptions about performing psychological tasks, oppositional behavior).

Combination of Selection and Maturation:

Maturation factor differentially associated with ADD/H (e.g. decline in performance over time, fatiguability?)

THREATS TO EXTERNAL VALIDITY

EXTERNAL VALIDITY: The extent to which we can generalize from the results of the experiment to the real world. That is, how far can we apply the results of the experimental hypothesis to the general hypothesis. Threats to external validity imply that there is/are some special condition(s) in the experimental situation which may limit the generality of the findings.

THREATS TO EXTERNAL VALIDITY:

1. **Reactivity of outcome assessment:** Differences in subjects' responses due to their awareness that their behavior is being assessed.
2. **Pretest sensitization:** Effects that taking the pretest might have on the way subjects' respond to the intervention (i.e. the experimental manipulation or independent variable).
3. **Posttest sensitization:** Effects that taking the posttest might have on the way subjects' respond to the intervention.
4. **Generality across constructs and outcome measures:** How much are the obtained results limited to the domains (constructs) which were investigated and to the measures used? In other words, would you get the same results if you used different measures?
5. **Reactivity of experimental arrangements:** Influence of knowing that they are in an experiment (i.e. that their behavior is under investigation and/or being manipulated) on subjects' responses to the intervention.
6. **Multiple-treatment interference:** The effects that being exposed to other treatments (interventions, experimental manipulations) might have on the subjects' responses to the intervention in question.
7. **Novelty effects:** The possibility that the effects of intervention may in part depend on the newness or novelty of the experimental situation.
8. **Combination of selection and treatment:** The possibility that some subjects are differentially responsive (or unresponsive) to the treatment.
9. **Combination of experimental setting or situation and treatment:** The possibility that the effects of a particular treatment are limited by the experimental setting or situation.

10. Combination of history and treatment: The possibility that the effectiveness of an intervention is limited by the current historical context, i.e. the possibility that the same results might not have been obtained had the experiment been conducted in the past or might not be obtained in the future.

11. Time of measurement and measurement effects: The possibility that time at which assessment is conducted may have an effect upon the results.

OTHER RESEARCH DESIGNS

FACTORIAL DESIGNS

Factorial designs allow the simultaneous investigation of different conditions of two or more independent variables (factors) in a single experiment. The simplest factorial design is the 2 (two conditions of one independent variable) X 2 (two conditions of another independent variable). The Prinz et al (1984) study is an example of a 2 X 2 factorial design: 2 (group) X 2 (condition).

WITHIN-SUBJECT DESIGNS

Each condition is administered to each subject in a within-subject design, with the subject serving as his/her own control.

Counterbalanced Designs:

Within-subjects designs in which each condition is administered in different orders to different groups of subjects.

Crossover Designs.	R	O ₁	X ₁	O ₂	X ₂	O ₃
	R	O ₄	X ₂	O ₅	X ₁	O ₆

Two conditions are administered to two groups of subjects, with the order of administration reversed for the two groups.

Intrasubject-Replication Designs:

The experimental conditions are applied to a single subject.

ABAB Design. A=Baseline;No treatment
B=Experimental phase; treatment

Multiple-Baseline Design. The independent variable is applied to different dependent variables at different points in time.