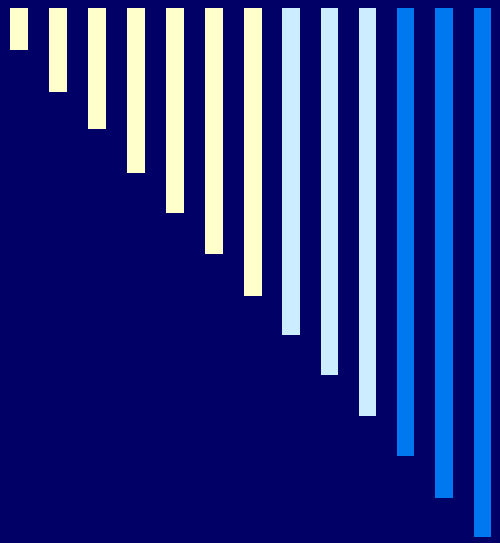


ESE

8.2 Dictionary of Threads

Dictionary of Threads: A-B

Ambiguity about direction of causal influence: (IV)
Applies to Single group threads. Is it A to cause B, B to cause A or X to cause both A and B?

Dictionary of Threads: C

Confounding constructs and levels of constructs: Using presence/absence, rather than levels of, construct.

Compensatory equalization of treatments: When compensating subjects in the control group for not getting treatment and compensation affect their behavior.

Compensatory rivalry: Who gets the less desirable treatment may tend to reduce or reverse the expected outcomes. People using traditional treatment may do their best.

Dictionary of Threads: D

Design threat: concerns the design and its ability to reflect the construct to be studied.

Diffusion of imitation of treatments: When the control group learn about the treatment and try to imitate the behavior of the group in the study.

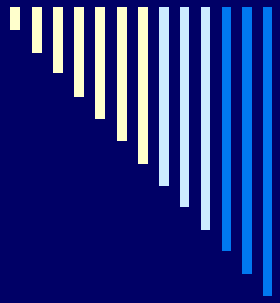
Dictionary of Threads: E-F

Experiment expectancies: (IV) Applies to social threats. When experimenters bias the results consciously or unconsciously based on what they expect from the experiment.

Evaluation apprehension: When people are afraid to be evaluated and try to perform

Error rate: (CcV) Is concerned with the actual significant level, which should be adjusted when conducting multiple analyses.

Fishing: (CcV) Searching for a specific result.



Dictionary of Threads: G-H

Hypothesis guessing: (IV) Applies to social threats. When subjects bias their behavior on their guesses about the hypotheses.

History: (IV) Applies to Single group threads. E.g. Run the experiment in a day after holiday.

Dictionary of Threads: I (1/2)

Inadequate preoperational explication of constructs: Construct are not sufficiently defined before they are translated into measures or treatments. E.g., if you measure productivity of a method then you should also measure maintainability of products.

Instrumentation: (IV) Applies to Single group threats. Data collection forms, etc.

Interaction among setting and treatment: When using old technologies, toy objects, etc.

Interaction of different treatments: When subjects are involved in more than one experiment.

Dictionary of Threads: I (2/2)

Interaction of selection and treatment: Subjects are not representative of the population.

Interaction of history and treatment: e.g. conduction questionnaire on software-based safety the day after a software crash.

Interaction with selection: (IV) Applies to Multiple group threats. E.g. interactions Selection-Maturation (different groups mature at different speed), Selection-History (history affects differently different groups).

Interaction of testing and treatment: the application of treatment may make the subject more sensitive or receptive to the treatment.

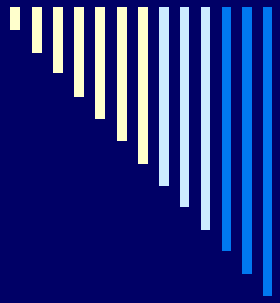
Dictionary of Threads: L-M

(1/2)

Maturation: (IV) Applies to Single group threats Subjects perform differently as time passes or depending on dependencies from the experimenter (e.g. of students from their teacher).

Mono-operational bias: When the elementary experiments (subject, object, treatment) include a single independent variable, the experiment may not give a full picture of the theory.

Mono-method bias: When using a single type of measure, specially measure influenced by subjectivity, the experiment may bias the measure.



Dictionary of Threads: M (2/2)

Mortality: (IV) Applies to Single group threats. Drop out from the experiment.

Multiple Group Thread: The control group and the selected experiment group by the Single group threats. Thus, there are interactions with the selection.

Dictionary of Threads: R (1/2)

Random heterogeneity of subjects: (CcV) Differences among subjects is so large that variations due to subjects is higher than variation due to treatment.

Random irrelevancies in experimental setting: (CcV) Concerns noises outside the experiment room the affect results.

Reliability of measures: (CcV) Depends on many factors, like using bad instrumentation or bad instrumentation layout, trying to use subjective rather than objective measures . We should use measures that are independent from human judgment, so that when trying to replicate the experiment once more , the same results should be obtained.

Dictionary of Threads: R (2/2)

Reliability of treatment implementation: (CcV) Refers to similarity in the application of treatment to different subject or in different situations.

Resentful demoralization Low statistical power: When subjects who get the less desirable treatment tend to reduce their performances, or subjects who get the new treatment tend to perform at the best.

Restricted generalization among constructs: The treatment affect the intended construct positively and unintended constructs negatively.

Dictionary of Threads: S (1/2)

Selection: (IV) Applies to Single group threats. Volunteers are generally more motivated than the whole population.

Social threat: In the experiment, subjects might act differently than they do otherwise.

Single group threat: (IV) There is no control group (to which we do not apply treatment). There is problem in determining if the treatment or some other factor caused the observed results.

Dictionary of Threads: S (2/2)

Statistical power: (CcV) Ability of the test to reveal a true pattern.

Statistical regression: (IV) Applies t Single group threats. Subjects are stratified, based on their performances in previous experiments.

Dictionary of Threads: T-Z

Testing: (IV) Applies to Single group threats. Concern repetition of a test. If a test is repeated subjects may respond differently at different times since they know how the test is conducted.

Timing: When two or more treatments are not applied at the same time and the same circumstances, choosing the wrong day and wrong time for one treatment rather than the other.

Violated assumptions of statistical tests: (CcV) When trying to jump over some critical statistical rules (i.e. normality, independent sample). In general, when utilizing a test with samples or outcomes, which do not meet the test assumptions.