Experimental Method, Design and Cotrol

Experimental method

Theory provides general explanation or account of certain findings and data.

Hypotheses are predictions and expectation about behaviour based on the theory. Each method is useful for testing some hypotheses.

Manipulating or controlling one factor **(independent variable)** affects participant's behaviour **(dependent variable).**

Causal relationship (x caused y)

Validity: A laboratory experiments have high **internal validity** (just observes effect of the IV). Field experiments have high **external validity** (generalize to the real world; ecological and population validity) and they are less artificial.

Demand characteristics: participants try to guess the nature of the study or to work out what the experiment is about.

Evaluation apprehension -anxiety felt by participants to perform well and please the experimenter

Experimental design

Variables: IV affects DV

Extraneous variables (that might affect the DV) are not controlled are called confounding variables because they confound the effects of the IV. Confounding variables need to control to turn into Controlled variables.

Random error- extraneous variable that is unpredictable and unsystematic

Constant error - serious because it affects performance in one condition more than the other

Operationalisation - variables in a form that can be tested (operations)

Condition-value or level of variables

1. Experimental condition-suspected casual variable (IV) is present
2. Control condition-casual variable is absent

Experimental/Alternative hypotheses could be one tailed/directional, two-tailed/non directional and null hypothesis.

Experimental control

- **Independent measures -** different set of participants allocated to each condition (individual differences)
- **Repeated measure -** the same set of participants takes part in both condition (demand characteristic, order effect).

Counterbalancing is used in a repeated design to avoid order effect. Each condition is equally used by participants

- **Matched pairs according to a variable (sex, IQ, ability) - time consuming**

Random allocation; randomization - participants are allocated at random to condition

Standardized procedures - set of procedures that are same for all participants to enable replication