3. Forming a hypothesis

Research questions identify the phenomenon to be studied, fuelled by the curiosity and personal interests, stimulated by present research and theories,

Hypothesis (alternative/experimental): a working supposition (statement) about the possible research findings linked to the study aims. It clearly states the relationship expected, between which variables, and is a declarative statement. Hypotheses must be falsifiable; able to be proven false, and therefore testable.

- **Directional** (one tailed) hypothesis: predicts the nature of the effect of the IV on the DV.
- **Non-directional** (two tailed) hypothesis: suggests that there is a relationship between variable but does not posit a particular direction,

Null hypothesis: states that the IV will have no effect on the DV; no relationship,

It is normally considered reasonable to accept results as significant, if we are 95% certain that they are not due to chance (p<0.05).

When the significant level is too easy (lenient) this results in a **Type 1 error**: if the significant level is too low this may lead to a false positive when the hypothesis is accepted when it really should have been rejected.

When the significance level is too difficult (stringent) this results in a **Type 2 error**: if the significant level is too high this may lead to a false negative when the hypothesis is rejected when it really should have been accepted.

Cost Vs Benefit analysis: Chomsky: “Does the research in question carry costs, and if so are they outweighed by its significance”?
7. Reliability

Reliability – refers to the replicability of the measurement procedure to yield consistent results over time,

Internal (inter-item) reliability – whether the items in a composite measure correlate highly using Cronbach’s alpha,

Test-retest reliability – the correlation between scores on a test A measured with their scores from test A the second time around (same test twice).

Inter-observer reliability – repeated measures by different observers on the same subject, especially important in coding observed behaviours.

8. Validity

Validity – refers to the extent to which the measurement procedure actually measures the concept that it is intended to measure (‘measuring what you think you are measuring’).

External validity – the extent to which the results of a study can be generalised to other more realistic settings,

Face validity – ‘on the face of it’ does the test appear to be a measure of the psychological concept concerned (subject measure of validity),

Content validity – refers to the degree to which a measure covers the full range of behaviours of the ability being measured,

Construct validity – the degree to which a study measures and manipulates the underlying psychological elements that the researchers claims to be measuring; does the measured concept relate empirically to other measure variables in ways that are theoretically expected (e.g. does the measure yield the expected correlations?)

Criterion-related validity – addresses the question of whether a measure fulfils certain criteria;

Concurrent validity – whether a measure produces similar results to that of an existing measure,

Predictive validity – if a measure correctly predicts some future state of affairs (e.g. if a measure has been devised of academic aptitude it could be used to select student entry to university, A levels).

RELIABILITY is a necessary condition for VALIDITY however, it is not sufficient, a measure be can RELIABLE without being VALID.