Definitions and Concepts for AQA Psychology A-level

Topic 7: Research Methods

Definitions in bold are for A2 only

Research Methods

Case studies: **A detailed study of a particular person/persons or event, usually yielding a large amount of information.**

Content analysis: **A research tool used to determine the presence of certain words, themes, or concepts within some given qualitative data**

Controlled observation: A type of observation where participants are observed in a lab, increasing control and reliability but decreasing ecological validity.

Correlation: The extent to which two variables are associated.

Covert observation: A type of observation where the observer is hidden and therefore participants do not know they are being observed. While this does reduce demand characteristics, it can raise ethical issues around consent.

Experiment: A type of investigation wherein a hypothesis is tested by manipulation of an independent variable, in order to view its effect on the dependent variable.

Field experiment: A type of experiment that is conducted in a real life setting, which reduces the amount of control over extraneous variables, however the ecological validity is improved.

Interviews: A self-report technique wherein participants are asked questions by an interviewer, which allows for flexibility in the information gathered.

Laboratory experiment: A type of experiment that is conducted in a highly controlled environment, allowing control over extraneous variables at the expense of ecological validity.

Natural experiment: A type of experiment in which an independent variable that already exists is tested in its natural environment, greatly reducing the control of extraneous variables. This type of experiment allows for investigation of variables that cannot ethically be created.

Naturalistic observation: A type of observation where participants are observed in their natural environment, increasing ecological validity but decreasing the amount of control over

extraneous variables.

Non-participant observation: A type of observation where the observer does not join the group under observation. This allows for higher objectivity but reduces the insight that could be achieved with a participant observation.

Observation: A type of data collection wherein participants' behaviour is observed.

Overt observation: A type of observation where the participants know they are under observation. This preserves informed consent but may increase demand characteristics.

Participant observation: A type of observation where the observer joins the group under observation. This form of observation yields highly valuable qualitative information with insight, but can reduce the objectivity of the researcher.

Quasi experiment: See "Natural experiment"

Questionnaires: A self-report technique wherein participants answer pre-decided questions, in the form of paper or electronically. This form of self-report allows for anonymity.

Structured interviews: A form of interview wherein questions are pre-set beforehand, with no flexibility. Usually, these consist of closed questions, and allows for replicability.

Unstructured interviews: A form of interview wherein questions may be set beforehand, but the interviewer is allowed flexibility in the form of a natural conversation.

Scientific Processes

Abstract: **A part of a scientific report that aims to summarise the report.**

Aims: The objective or purpose of the experiment.

Bias: An inclination to a certain position or thought. For example, in hostile attribution bias, hostility or negativity is more likely to be assumed from a neutral face.

Behavioural categories: An observational technique wherein participants' possible behaviours are separated into more specific components. This allows for operationalisation of the behaviour. For example, splitting aggression into categories of "swearing" and "punching".

Closed questions: A type of question that can only be answered with a limited number of answers, usually a "yes" or "no".

Concurrent validity: **Occurs if a test is similar to an older test that already has**

well-established validity.

Confounding variable: A type of extraneous variable that is related to the independent variable in the experiment. For example, if you were testing the effects of anxiety on memory recall, the relative levels of sensitivity to anxiety-inducing stimuli would be a confounding variable.

Control variable: Any variables that are kept constant through the experiment to prevent their effects on the dependent variable.

Counterbalancing: To make half of the participant sample experience the different conditions of the experiment in one order, and the other half of the participants complete it in the opposite order.

Demand characteristics: Changes in the participants' behaviour to comply with the hypothesis of the researcher.

Dependent variable: The variable that changes in response to manipulation of the researcher, that is being measured for the experiment. For example, if you were testing the effects of anxiety on memory recall, memory recall would be the dependent variable.

Directional hypothesis: A hypothesis that specifies the direction of the relationship of the experiment e.g. coffee will have an effect on the reaction time of participants.

Ecological validity: **How well results from a test can be applied to real life.**

Event sampling: An observational technique wherein an observer records every time a particular behaviour or "event" occurs, usually in the form of a tally chart.

Extraneous variable: Variables other than the independent variable that have an effect on the dependent variable. For example, if you were testing the effects of anxiety on memory recall, the intelligence levels of the participants could be an extraneous variable.

Face validity: **If a test appears to be valid at first appearances, in spite of how well it works in a real world scenario.**

Falsifiability: **The quality of being able to be proven wrong. For example, the proposition "All crows are black" could be falsified by observing one white crow. Thus, the statement is falsifiable, even if a white crow has not been hitherto observed.**

Generalisation: To attribute information from a sample to the rest of the population.

Hypothesis: The prediction of the outcome of the experiment.

Independent groups: An experimental design wherein different participants are involved in different conditions of the experiment. For example, using two different groups of people to test

the effect of music on memory recall, with one group memorising during music playing and the other in silence.

Independent variable: The variable that is manipulated by the researcher to observe its effects on the dependent variable. For example, if you were testing the effects of anxiety on memory recall, anxiety would be the independent variable.

Inter-observer reliability: **Multiple investigators gather information separately during an observation and compare their data for similarity after.**

Investigation effects: Unconscious changes in the investigators behaviour to comply with the hypothesis of the investigation.

Matched pairs: An experimental design wherein participants in different conditions of the experiment are matched on certain variables to reduce the effect of participant variables. For example, in the Bobo doll study, children were matched on scores of aggressiveness for each condition.

Non-directional hypothesis: A hypothesis that does not specify the direction of the relationship of the experiment e.g. coffee will change the reaction times of participants (whether it will increase or decrease the times is not specified).

Objectivity: **Empirical; something that is not influenced by personal feelings.**

Open questions: A type of question that requires answers that are longer than “yes” or “no”.

Operationalisation (of variables): To clearly state and objectify a variable. For example, instead of measuring “aggression”, researchers would convert it into observable categories like “punching” and “kicking”.

Opportunity sampling: A sampling technique that involves obtaining a sample via anyone that is available from the population at the time of collecting the sample. For example, handing questionnaires out to people outside a shopping mall.

Paradigm: **A basic concept; a well accepted core belief.**

Paradigm shift: **When previously accepted core concepts in a science are changed, usually due to the emergence of new evidence.**

Peer review: The assessment of work by other people with similar levels of expertise in that field, to provide an unbiased expert opinion of the quality of said work.

Pilot studies: Preliminary/trial studies carried out to ensure the clarity of the study itself. For example, using a pilot questionnaire on a sample of people that give feedback on the clarity of the questions.

Population: The group represented by a sample.

Random allocation: To allocate participants to separate conditions using some sort of randomisation technique. For example, using a computer to randomly generate groups for condition A and B.

Random sampling: A sampling technique that involves randomly generating participants from the population by any randomisation technique. For example: random number generation from a computer, picking names out of a hat.

Reliability: **Essentially replicability; the extent to which the test can be repeated and gather similar results.**

Repeated measures: An experimental design wherein the same participants undergo all the conditions of the experiment. For example, when testing the effect of coffee on reaction time, all participants will be tested for reaction time with and without coffee.

Replicability: **How easily a test can be reproduced.**

Sample: A smaller group that aims to be representative of a population.

Standardisation: Keeping the experimental methods as identical as possible.

Stratified sampling: A sampling technique that involves establishing sub-groups (strata) within the population investigated and picking participants to create a representative sample. For example, if the population is ⅔ female and ⅓ male, the sample should also be ⅔ female and ⅓ male.

Systematic sampling: A sampling technique that involves establishing a method to pick participants evenly distributed through the population. For example, picking every 10th participant in a list of the entire population.

Temporal validity: **How well results from a test can be applied across time periods.**

Test-retest reliability: **Completing a test multiple times and comparing the scores for similarity.**

Time sampling: An observational technique wherein an observer only records specific behaviours in specific time intervals. For example observing and recording the behaviour of football fans at a stadium every 15 minutes for 30 seconds.

Validity: **Essentially truthfulness; the extent to which a test measures what it aims to measure, i.e. uncontrolled extraneous variables reduce validity because they affect what is supposed to be measured.**

Volunteer sampling: A sampling technique that involves using participants that volunteer to take part in the study, provided they meet the inclusion criteria. For example, putting a request on an information board in your school and sending questionnaires to those that respond.

Data Handling and Analysis

Bar charts: A graphical representation of categorical data with numerical values.

Coding: **A type of analysis wherein huge texts are simplified to certain key words that are aligned with certain themes.**

Correlation: The extent to which two variables are associated.

Correlation coefficient: **A value between -1 and 1 that indicates the relationship (correlation) between two data sets.**

Interval: **A level of measurement that refers to variables that exist on scale with fixed, standardised intervals.**

Mean: A measure of the average of a data set that is calculated by adding all values together and dividing by the number of values. This means it takes every single value into account, including outliers.

Median: A measure of the average of a data set by determining the middle value in the data set. This means it only takes into account the very middle value, ignoring the value of any others.

Mode: A measure of the average of a data set by finding the most common value. This means it only takes into account the number of values, and not the values themselves.

Negative correlation: When two sets of variables have a negative relationship i.e. when one increases, the other decreases.

Nominal: **A level of measurement that refers to variables that can be counted in whole numbers, to indicate frequency.**

Normal distribution: A symmetric distribution of values around the mean, sometimes called “the bell curve”.

Ordinal: **A level of measurement that refers to variables that can be placed on a scale of relative importance i.e. in order.**

Positive correlation: When two sets of variables have a positive relationship i.e. when one

increases the other increases.

Primary data: Data that has been collected first hand, by yourself.

Qualitative data: Non-numerical data, such as text, video, photographs or audio recordings.

Quantitative data: Data that is categorised by numerical values. For example, height, weight, time.

Range: A measure of dispersion that is calculated by subtracting the smallest value from the largest value.

Scattergrams: A graphical representation of the correlation between two variables.

Secondary data: Data that has been collected by someone else.

Skewed distribution: An asymmetric distribution of values of values around the mean, which can be positively or negatively skewed.

Standard deviation: A measure of dispersion that represents the average distance of values from the mean. It is calculated by subtracting each value from the mean, squaring that difference and finding the sum of all these squares. Then, dividing by the number of values and finding the square root.

Thematic analysis: **A type of data analysis that aims to identify, report and analyse recurring concepts.**