Unit 1 Research Methods Knowledge Organiser (key terms see separate handout)

Considerations in research design

Hypothesis and variables	Sampling	Ethical issues	Reliability	Validity
Start with a theory of behaviour, tested using objective research methods **Aim** – general statement explaining the purpose of the study **Variables** – anything that can change or vary **IV** – changed **DV** – measured **Operationalisation** – making variables clearly defined and measurable **Hypotheses** – clear testable, precise statement **Alternative hypothesis** – predicts relationship between variables **Null** – predicts no relationship **Extraneous variables** – unwanted variables that could affect the DV **Research procedures** **Instructions to p's** – all p's must be given the same info **Standardised procedures** – exact same methods, to try and control EV's **Randomisation** – using chance when designing a study to control the effects of bias	**Target population** – group of people being studied Sample is chosen from the target population and should represent target population Sampling methods aim to avoid bias **Random sampling** – each person has an equal chance of being selected, all people in the target population put in a hat or random name generator Evaluation - no bias as everyone has equal chance, takes time as need all members of the target population, sample may still not represent target pop **Opportunity sampling** – taking the people who happen to be there Evaluation – quick and cheap, yet only represents the population from which it was drawn **Systematic sampling** – selecting every nth person from a list of the target population Evaluation – avoids researcher bias, may end up with an unrepresentative sample **Stratified sampling** – selecting p's in the proportion to frequency in the target population Evaluation – most representative, very time-consuming to sort sub-groups	Conflict between p's rights and well-being and the need to gain valuable results **Informed consent** – p's should be told the purpose of research and that they can leave at any time **Deception** – p's should not be misled about the aims, mild deception can be justified **Privacy** – p's have the right to control information about themselves **Confidentiality –** personal data must be protected and respected **Ways of dealing with ethical issues** **BPS guidelines** – which all professional psychologists must follow **Dealing with informed consent** – p's (guardians) sign a form **Dealing with deception and protection from harm** – full debrief at the end to reduce distress **Dealing with privacy and confidentiality** – p's should be anonymous	Measure of **consistency** **Quantitative methods** – tend to be most reliable. **Lab exp's** – controlled and easy to replicate **Interviews/ questionnaires** – same person should answer the q's in the same way, closed questions better for this **Observations** - one observer should produce same observations if repeated or two observers (interobserver reliability) **Qualitative methods** – less reliable Case studies and unstructured interviews – difficult to repeat in the same way	Related to whether a result is a **true reflection of 'real-world' behaviour** **Sampling methods** – sample may not represent target population. Opportunity sample – lowest in representativeness, high in stratified sampling **Experimental design** – **Repeated measures** – order effects challenge validity, overcome by counterbalancing **Independent groups** – p's variables challenge validity, overcome by random allocation **Quantitative methods** **Lab exp** – task, setting, participant awareness challenge validity, high control. **Field exp** – task and control challenge validity, more natural Methods producing numerical data lack validity as they reduce behaviour to a score **Qualitative methods** – case studies have greater validity as they give a deeper insight into behaviour Difficult to analyse which reduces validity

Data Handling

Types of data	Evaluation	Descriptive statistics – express numbers in a way to show the overall pattern	Evaluation	Interpretation and display of quantitative data	Computation
Quantitative data – numbers but can measure through thoughts and feelings **Qualitative data –** words but can be turned to numbers when counting **Primary data** – obtained first hand **Secondary data** – data from other studies of government stats	Easy to analyse and draw conclusions, lacks depth More depth and detail, difficult to analyse and summarise Suits the aims of the research, takes time and effort Easy and convenient to use, may not be fit for what is investigated	**Range –** spread of data, arrange data in order and subtract lowest from highest score **Mean** – mathematical average, add up scores and divide by the number of scores **Median** – middle value, data put in order from lowest to highest **Mode –** most common score(s)	Easy to calculate, can be distorted by extreme scores Uses all data so is the most sensitive measure, can be distorted by extreme values Not effected by extreme scores, less sensitive than the mean to variation in values Very easy to calculate, can be unrepresentative	**Scatter diagrams** – for correlations **Frequency tables** – way to organise data in rows and columns, shows the number of times something has occurred **Frequency diagrams** – **Histogram** – continuous categories, no spaces between bars **Bar chart** – bars in any order **Normal distribution** – symmetrical spread forms a bell shape with mean, median and mode at peak	**Decimals** **Fractions** – reduced to simplest form **Ratios** – way to express fractions 8:4 **Percentages** – fractions out of 100 **Mean** – add up scores and divide by number of scores **Standard form** – mathematical shorthand to represent very large or small numbers **Significant figures** – two significant figures 32,462 = 32,000 **Estimate results** – rough calculation

Unit 1 Research Methods Knowledge Organiser (key terms see separate handout)

Quantitative and qualitative research methods			
Method	**Description**	**Strengths**	**Weaknesses**
Correlations	Show how things are linked together, associations **Co-variables** – correlations are quantitative, continuous numerical data **Scatter diagrams** used to plot **Positive** – as one variable increases so does the other **Negative** – as one variable increases the other decreases **Zero** – no relationship	Good starting point for research Can be used to investigate curvilinear relationships	Does not show cause and effect No controls of EV's so conclusions drawn may be wrong
Experiments	Look at a measureable change in the DV caused by a change to the IV		
	Lab experiments – high control over what happens, takes place in a lab	EV's can be controlled, so cause and effect can be established Used of standardised procedures permits replication, can demonstrate validity	Behaviour in a lab is less normal so difficult to generalise P's may change their behaviour because they are aware they are being watched
	Field experiments – take place in a natural setting, IV manipulated by experimenter	More realistic than lab exp's as in a natural environment Can use standardised procedures so some control	May lose control of EV's so difficult to show cause and effect Ethical issues because p's not aware of the study
	Natural experiments - natural or lab setting, IV is not changed by the experimenter it varies naturally e.g. age, race	May have high validity because of real-world variables Can standardise procedures so some control over EV	Few opportunities to do this kind of research as behaviours may be rare May be EV's because p's not randomly allocated to conditions
Experimental design	The different ways p's can be organised in relation to IVs/conditions of the exp		
	Independent groups – 2 groups, different p's in each condition	Order effects not a problem because p's only do the experiment once	Different p's in each group, participant variables can act as EVs To deal with participant variables, try to allocate p's to conditions using chance or systematic method
	Repeated measures – 1 group of p's which do both conditions	No participant variables, fewer p's needed so less expensive	Order effects reduce validity To deal with order effects, use counterbalancing so half the p's do condition A first and then conditions B, the others do B and then A
	Matched pairs – p's tested on variables relevant to the study, p's then matched to and one member of each pair goes in each condition	No order effects, fewer participant variables	Takes time to match participants, doesn't control all participant variables
Interviews	Face to face, real-time contact, though also on phone / text **Structured** – interviewer reads list of questions, can have prepared follow-up questions **Unstructured** – some questions prepared before, new questions created depending on what interviewee says **Semi-structured** – some questions decided before but follow-up questions emerge	Produce lots of information Insight gained into thoughts / feelings	Data can be difficult to analyse People may be uncomfortable talking face to face
Questionnaires	Prepared list of questions which can be answered in writing, over the phone, internet etc. **Open questions** – tend to produce qualitative data **Closed questions** have a fixed range of answers, e.g. rating scales, yes/no etc.	Can gather lots of information from many people Easy to analyse as often used closed questions	Social desirability bias Questions may be leading so lack validity
Case studies	An in-depth investigation of an individual, group, event or institution Qualitative method – collect information about people's experiences in words. May have quantitative data e.g. IQ scores Longitudinal – often carried out over a long period of time so can see how behaviour changes, may also collect retrospective case history	Research lacks specific aims so researcher more open-minded Best way of studying rare behaviours	Focus on one individual or event, so often cannot be generalised Subjective interpretation of events
Observations	Researcher watches or listens to ps' and records data **Natural vs controlled** – natural (where it would normally occur), controlled (researcher manipulates env) **Covert vs overt** – covert (under cover so p's not aware) overt (p's told in advance) **Participant vs non-participant** – participant (researcher part of the group), non-participant (researcher remains separate) **Categories of behaviour** – target behaviour broken into separate observable categories **Interobserver reliability** – two researchers should watch the behaviour at the same time, record and the correlate behaviour	Greater validity because based on what people do Real –life behaviour when p's not aware of being observed	Ethical issues as can't gain consent if observing in a public place Observer bias – observer's expectations affect validity