- Experimental method. Types of experiment, laboratory and field experiments; natural and quasi-experiments.
- Observational techniques. Types of observation: naturalistic and controlled observation; covert and overt observation; participant and non-participant observation.
- Observational design: behavioural categories; event sampling; time sampling.
- Self-report techniques. Questionnaires; interviews, structured and unstructured. Questionnaire construction, including use of open and closed questions; design of interviews.
- Correlations. Analysis of the relationship between co-variables. The difference between correlations and experiments. Analysis and interpretation of correlation, including correlation coefficients.
- Content analysis: Content analysis and coding. Thematic analysis.
- Aims: stating aims, the difference between aims and hypotheses.
- Sampling: the difference between population and sample; sampling techniques including: random, systematic, stratified, opportunity and volunteer; implications of sampling techniques, including bias and generalisation.
- Pilot studies and the aims of piloting.
- Experimental designs: repeated measures, independent groups, matched pairs.
- Variables: manipulation and control of variables, including independent, dependent, extraneous, confounding; operationalisation of variables.
- Control: random allocation and counterbalancing, randomisation and standardisation. Demand characteristics and investigator effects.
- Ethics, including the role of the British Psychological Society's code of ethics; ethical issues in the design and conduct of psychological studies; dealing with ethical issues in research.
- The role of peer review in the scientific process.
- Reliability across all methods of investigation. Ways of assessing reliability: test-retest and inter-observer; improving reliability.
- Types of validity across all methods of investigation: face validity, concurrent validity, ecological validity and temporal validity. Assessment of validity. Improving validity.
- Features of science: objectivity and the empirical method; replicability and falsifiability; theory construction and hypothesis testing; paradigms and paradigm shifts.
- Reporting psychological investigations. Sections of a scientific report: abstract, introduction, method, results, discussion and referencing.
- Quantitative and qualitative data; the distinction between qualitative and quantitative data collection techniques.
- Descriptive statistics: measures of central tendency – mean, median, mode; calculation of mean, median and mode; measures of dispersion; range and standard deviation; calculation of range; calculation of percentages; positive, negative and zero correlations.
- Probability and significance: use of statistical tables and critical values in interpretation of significance; Type I and Type II errors.
- Factors affecting the choice of statistical test, including level of measurement and experimental design. When to use the following tests: Spearman's rho, Pearson's r, Wilcoxon, Mann-Whitney, related t-test, unrelated t-test and Chi-Squared test.
- Introduction to statistical testing; the sign test.

COURSE COMPANION

RESEARCH METHODS

tutor2u

Experimental method. Types of experiment, laboratory and field experiments; natural and quasi-experiments.

What You Need to Know

You need to be able to identify and describe experimental methods.
You also need to know the strengths and weaknesses of each

Different types of methods are used in research, which loosely fall into 1 of 2 categories: experimental (Lab, Field & Natural) & non experimental (correlations, observations, interviews, questionnaires and case studies).

All the 3 types of experiments have characteristics in common. They all have:

- an independent variable (I.V.) which is manipulated
- a dependent variable (D.V.) which is measured
- there will be at least 2 conditions in which participants produce data.

Note – natural and quasi experiments are often used synonymously but are not strictly the same, as with quasi experiments participants cannot be randomly assigned, so rather than there being a control condition there is a comparison condition.

Lab Experiments – these are conducted under controlled conditions, in which the researcher deliberately changes something (I.V.) to see the effect of this on something else (D.V.).

Field Experiments - these are carried out in natural conditions, in which the researcher deliberately changes something (I.V.) to see the effect of this on something else (D.V.).

Natural/ Quasi Experiments - these are in natural conditions, in which the researcher measures the effect of something which is naturally occurring (I.V.) to see the effect of this on something else (D.V.). Note that in this case there is no deliberate manipulation of a variable; this already naturally changing, which means the research is merely measuring the effect of something that is already happening.

	Strengths	Limitations
Lab	Control – lab experiments have a high degree of control over the environment & other extraneous variables which means that the researcher can accurately assess the effects of the I.V, so it has higher internal validity. Replicable – due to the researcher's high levels of control, research procedures can be repeated so that the reliability of results can be checked.	Lacks ecological validity – due to the involvement of the researcher in manipulating and controlling variables, findings cannot be easily generalised to other (real life) settings, resulting in poor external validity.
Field	Validity – field experiments have some degree of control but also are conducted in a natural environment, so can be seen to have reasonable internal and external validity.	Less control than lab experiments and therefore extraneous variables are more likely to distort findings and so internal validity is likely to be lower.
Natural	High ecological validity – due to the lack of involvement of the researcher; variables are naturally occurring so findings can be easily generalised to other (real life) settings, resulting in high external validity.	Lack of control – natural experiments have no control over the environment & other extraneous variables which means that the researcher cannot always accurately assess the effects of the I.V, so it has low internal validity. Not Replicable – due to the researcher's lack of control, research procedures cannot be repeated so that the reliability of results cannot be checked.

Observational techniques. Types of observation: naturalistic and controlled observation; covert and overt observation; participant and non-participant observation. Observational design: behavioural categories; event sampling; time sampling.

What You Need to Know

You need to be able to outline and evaluate each observational technique.
You should also be able to describe behavioural categories, event sampling and time sampling

These methods involve observing actual behaviours which are subsequently scored. A key challenge that is encountered by the researcher though is deciding what to look for and how to decide what constitutes a particular behaviour. The behaviours that the researcher is interested in need to be clearly defined (operationalised) so that the observer knows what to look out for and measure; eventually these can be counted up to produce a score.
There are many types of observations, such as naturalistic and controlled observation; covert and overt observation; participant and non-participant which all have their strengths and weaknesses.

Psychologists attempt to overcome the ambiguity of observing their chosen behaviours by clearly defining (operationalising) these, which usually involves producing a behaviour checklist or behaviour categories, so that the researcher knows exactly what to look out for. Eg. if a researcher was interested in measuring aggression through an observation the checklist might include predetermined behaviours such as punching, kicking, pushing and biting. Each time a participant displayed any of the listed behaviours this would be counted producing a running tally for each behaviour identified.

Time Vs Event Sampling - There are occasions in which it might be useful for the researcher to gather an insight into whether there are behavioural trends that occur over particular time periods. Under such circumstances researchers can use time sampling in which behaviours are noted within prescribed intervals. For instance a researcher might tally co-operative classroom behaviours (operationalised as instances of students putting their hand up to contribute and attempting to help their peers) over 5 minute intervals during a lesson. Each 5 minute interval could then be compared to identify when most co-operative behaviours occur. In contrast event sampling would simply tally all co-operative behaviour over the full 1 hour lesson to gather an overall impression of the amount of co-operative behaviour.

	Strengths	Limitations
Natural observations	High ecological validity as the researcher records naturally occurring behaviour in a natural environment, without any outside interference from the researcher.	Natural observations – cannot be replicated to check reliability, as the researcher is not in control of variables.
Controlled observations	Low ecological validity as the researcher records behaviours in an artificial (manipulated) environment, with potential outside interference from the researcher.	Can be replicated to check reliability, as the researcher is in control of variables and therefore can repeat the method as they wish.
Covert observations	Investigator effects are unlikely meaning that participants' behaviour will be genuine.	Less ethical as participants are not aware they are taking part and cannot give fully informed consent.

	Strengths	Limitations
Overt observations	It is possible to inform participants in advance and obtain informed consent.	Behaviour can be distorted through investigator effects in which the participant changes their behaviour through social desirability bias.
Participant observation	The researcher can obtain in-depth data as they are in close proximity to the participants and so are unlikely to overlook or miss any behaviours.	The researchers' presence might influence the participants' behaviour due to evaluation apprehension.
Non-participant observation	Investigator effects and evaluation apprehension are less likely as the researcher is not visible	Due to a lack of proximity the researcher might overlook or miss behaviours of interest

NOTES

Self-report techniques. Questionnaires; interviews, structured and unstructured. Questionnaire construction, including use of open and closed questions; design of interviews.

What You Need to Know

You need to be able to outline and evaluate the self-report techniques stated (questionnaires and interviews…structured and unstructured)

You also need to know about constructing a questionnaire, the difference between open and closed questions and how to design an interview. These may all have to be applied to a novel example in the examination.

Self-report is the generic term for methods requiring participants to produce responses to questions, which can be presented through either questionnaires or interviews.

Interview

Interviews collect qualitative data through asking participants questions and recording their responses through note taking or the use of an electronic recording device. Interviews vary in terms of how predetermined the questions are. They can be structured, semi structured or unstructured. Structured interviews are carried out by the researcher asking a list of pre-prepared questions, while unstructured interviews follow a basic theme but the exact questions that are asked are decided by the researcher.

Semi-structured interviews offer a compromise between the two methods. The more structured interviews are, the easier responses are to compare & analyse but the more they restrict the researcher, perhaps preventing them from pursuing a response that might be of interest. They are often used to help researchers understand experiences, emotions or the perceived reasons for things happening. For instance, taking quantitative data on how many hours people spend using Facebook would produce very different data to questions requiring a description of why people choose to use Facebook. The qualitative data that the later example would produce would offer an insight into people's experiences of using Facebook and the reasons for the behaviour.

Questionnaires

Questionnaires are sometimes referred to as surveys and collect data from participants using a variety of written questions. The questions can be open, closed or use a rating scale.

Open questions produce qualitative data. For example - Explain why you like Facebook.

Closed questions produce quantitative data. For example - Do you like Facebook Yes/ No?

In addition, rating scale questions can be used and produce quantitative data.

Example. To what extent do you enjoy Facebook? (Hate) 1, 2, 3, 4, 5 (Love)

Consideration needs to be given to the questions that are chosen so that they are not too leading, are clear to understand and relevant to the topic being studied. Sometimes researchers might conduct a focus group with a relevant sample of people so that key thoughts and opinions can be identified and used as a basis to develop relevant questions

	Strengths	Limitations
Questionnaires	The researcher does not need to be present, so investigator effects can be avoided. Can be used to collect large volumes of data. Sensitive topics can be researched more readily, as the presence of the researcher is not required, which means that responses can remain anonymous.	However, by sticking to a predetermined list of questions, this does restrict the investigator as they are unable to pursue and explore responses that are of particular interest. Forced choice format questions do not necessarily reflect participants genuine behaviours or attitudes.
Interviews	Allows the researcher to collect qualitative data that is rich in detail and can be explored according to the researcher's aims and interests.	Investigator effects – the presence/ behaviour of the interviewer affects the outcome of the research and therefore distorts findings.

NOTES

Correlations. Analysis of the relationship between co-variables. The difference between correlations and experiments. Analysis and interpretation of correlation, including correlation coefficients.

What You Need to Know

For this section you need to understand what the difference between a correlation and an experiment is. For correlational research you need to be able to understand the relationship between co variables and be able to understand what information correlation coefficients give you. In the examination you may be required to interpret a correlation coefficient

The aims of research are often developed in light of existing research, either to build on existing findings or conduct studies in the absence of research. This is an important part of the scientific process to develop a rationale for why particular research is required. The aim outlines what the researcher intends to investigate.

Hypotheses on the other hand, though equally significant as part of the scientific process, are different. Hypotheses are testable statements which predict the outcome of research.

Hypotheses: directional and non-directional.

There are three types of hypothesis which follow below. In each case, it is crucial that the appropriate wording is used to suitably reflect the method that the researcher is using.

Null hypotheses predict that there will be no difference (for experiments) or relationship (for correlations) between variables. Eg. There will be no difference in recall scores out of 10 between the mnemonic and control conditions.

Alternative: Non directional hypotheses predict that there will be a difference (experiments) or relationship (correlations) between variables. Eg. There will be a difference in recall scores out of 10 between the mnemonic and control conditions.
Alternative: Directional hypotheses predict what the difference or relationship between variables will be. Eg. The mnemonic group will recall higher scores out of 10 than the control group.

Exam Tip

Experimental hypotheses – use the term difference or refer to the difference in scores between each condition.

Correlational hypotheses – use the term relationship
Whatever method is being used, all variables must be operationalised, so be as specific as you can in terms of what is being compared or measured.

Note – sometimes the term "experimental" hypothesis is used instead of the "alternative" hypothesis when using an experimental method.

NOTES

Content analysis: Content analysis and coding. Thematic analysis.

What You Need to Know

For this section you should be able to understand what a content analysis is, how to conduct one and what a thematic analysis is. It is important you also know the strengths and weaknesses of the techniques

Content analysis refers to the process in which presentations of behaviour or qualitative data from self-reports are analysed. In order to achieve this, researchers need to establish their aims and hypotheses and familiarise themselves with data so that a suitable coding system can be developed. Once suitable codes have been identified, the researcher can then systematically re-analyse the data to identify examples of each code which could then be tallied.

Tip - Whenever content analyses are carried out, data needs to be consulted a number of times, initially to identify codes/ themes and again (as many times as required) to refine and count instances of these.

Thematic Analysis

An alternative to content analysis which converts qualitative data into quantitative data, is to use thematic analysis. Once data is transcribed (where necessary) data is reviewed repeatedly so that the researcher can identify trends in the meaning conveyed by language. The themes identified are re-analysed so that they become more refined and relevant and given short hand codes.

The researcher can then annotate the transcript with the codes that have been identified. The themes identified can be used to support or challenge existing theories, with specific examples of data or quotes being used as supporting evidence.

	Strengths	Limitations
Content analysis	Offers a method to analyse a variety of forms of data including media and self-report methods so that insights into cultural trends and experiences can be understood.	The identification of suitable themes and codes is subjective and decided by the researcher alone, meaning that conclusions lack any scrutiny or objectivity.

Case studies

Case studies focus on one individual/ small groups in detail. The method often involves checking how someone develops over time (longitudinal research). A variety of measures are used to collect data on the individual such as, interviews, questionnaires, observations, records etc. The approach is described as idiographic as it focuses on the uniqueness of the individual rather than making broad less meaningful conclusions.

	Strengths	Limitations
Case Studies	Can challenge existing thinking and produce new insights as behaviours can be researched that would not be possible through experimental manipulation.	It is idiographic (relates to one individual) therefore findings cannot be generalised beyond the individual being studied.

Aims: stating aims, the difference between aims and hypotheses.

What You Need to Know

It is important you know how to write an aim and how it differs from a hypothesis

The aims of research are often developed in light of existing research, either to build on existing findings or conduct studies in the absence of research. This is an important part of the scientific process to develop a rationale for why particular research is required. The aim outlines what the researcher intends to investigate.

Hypotheses on the other hand, though equally significant as part of the scientific process, are different. Hypotheses are testable statements which predict the outcome of research.

Hypotheses: directional and non-directional.

There are three types of hypothesis which follow below. In each case, it is crucial that the appropriate wording is used to suitably reflect the method that the researcher is using.

Null hypotheses predict that there will be no difference (for experiments) or relationship (for correlations) between variables. Eg. There will be no difference in recall scores out of 10 between the mnemonic and control conditions.
Alternative: Non directional hypotheses predict that there will be a difference (experiments) or relationship (correlations) between variables. Eg. There will be a difference in recall scores out of 10 between the mnemonic and control conditions.
Alternative: Directional hypotheses predict what the difference or relationship between variables will be. Eg. The mnemonic group will recall higher scores out of 10 than the control group.

NOTES

Sampling: the difference between population and sample; sampling techniques including: random, systematic, stratified, opportunity and volunteer; implications of sampling techniques, including bias and generalisation.

What You Need to Know

You should be able to describe what each sampling type is, how it is conducted and the strengths and weaknesses of each type including how they may be biased and generalise to the target population.

Sampling refers to the techniques used to select participants that will be used in research. As it is not feasible to take data on an entire population, researchers identify sampling frames with the intention that a representative group can be obtained from the target sample. Different sampling techniques are used which vary in terms of convenience and generalisability, including:

- **Random –** all potential participants have an equal chance of being selected for research. This could be achieved by assigning numbers to participants & using a random number generator or picking names "out of a hat". Eg. if students from a particular school were the target sample, every single student from the given school would be assigned a number & the numbers would be picked out of a hat, to produce a research sample.
- **Opportunity –** researchers ask individuals that they are in contact with to participate in research. Eg. if Psychology 6th formers were doing research, they might contact other 6th formers to ask them to participate.
- **Volunteer –** researchers advertise their research asking for participants to come forward. This might be achieved through a newspaper advert which offers monetary payment for participants' involvement. Eg. notices might go up in the school's form rooms asking if people are willing to come forward to take part in the research.
- **Systematic –** The researcher will select every nth person from the sampling frame. Eg. The research might select every 10th person from the target year group.
- **Stratified -** The target sample is broken down into relevant sub groups and random sampling is used to pick a proportional number of each subgroup. When selecting a sample of students, rather than randomly selecting 20, initially the researcher would establish the proportion of males and females in the sample and then select a proportional number of each. This means that if there are more boys in the target year group there should be more boys proportionally selected in the sample chosen.

	Strengths	Limitations
Random	This provides a representative form of sampling as it is likely to include a broad range of individuals, whom have an equal chance of selection. As a result, findings can be generalised to the target population and beyond the research sample. Therefore research which uses this form of sampling has high population validity.	Samples are difficult to obtain. It is a complex process ensuring that an entire target population is represented and that all participants have an equal chance of selection.
Opportunity	Quick and easy to obtain.	This is not the most representative form of sampling as it is unlikely to include a broad range of individuals. As a result, findings cannot be generalised to the target population and beyond the research sample. Therefore research which uses this form of sampling has low population validity.

Volunteer	Quick and easy to obtain.	This is not the most representative form of sampling as it is unlikely to include a broad range of individuals. As a result, findings cannot be generalised to the target population and beyond the research sample. Therefore research which uses this form of sampling has low population validity.
Systematic	Easy to select participants from the sampling frame It is not subject to researcher bias..	It is not as representative as truly random sampling as each member from the sampling does not have an equal chance of selection.
Stratified	This is the most representative form of sampling as it is likely to include a broad range of individuals, whom have an equal chance of selection, which proportionally represents the target population. As a result, findings can be generalised to the target population and beyond the research sample.	Samples are difficult to obtain. It is a complex and time-consuming process accurately identifying subgroups and ensuring that all participants have an equal chance of selection.

NOTES

Pilot studies and the aims of piloting.

What You Need to Know

Learn what a pilot study is and what they are used for.

Pilot studies are small scale preliminary studies conducted before the start of main data collection, to check if research methods work, so that any problems with the method can be addressed.

In observational research these can be useful, so that behavioural checklists/ categories can be produced in advance of the main study. Similarly, in the case of questionnaires the researcher might need to check that there are a suitable number of questions and that they are easy to understand.

Regardless of the method being employed, the researcher will need to check the practical running of their study to ensure that it is suitable. Researchers might check that instructions are clear, that participants have a suitable time-period to complete the task and that materials/ stimuli are suitable.

Tip – When writing about pilot studies in the exam, make sure that your answers are specific to the context or study presented. Eg. if the question referred to an experiment investigating the effects of a strategy to improve memory, you could refer to the need to check the stimuli being used in the memory test and how long participants should be given to learn them.

NOTES

Experimental designs: repeated measures, independent groups, matched pairs.

What You Need to Know

You need to be able to identify and describe each of the types of experimental designs. You also need to be able to give a strength and limitation of each.

Experimental design relates to how participants are used in research eg. different participants in each condition or participants completing more than 1 condition:

- **Independent Groups** – different participants are used in each experimental condition, so that person A's performance is compared with person B from another condition.
- **Repeated Measures** – the same participants are used in each experimental condition & the results for each participants are compared against each condition, so person A's performance under one circumstance would be compared with their own performance in another circumstance.
- **Matched Pairs** - different participants are used in each experimental condition but the people are matched on relevant variables, so that person A's performance is compared with person B from another condition but researchers check to make sure that person A & B have similar abilities before the start of the research.

	Strengths	Limitations
Independent Groups	No order effects.	There would be individual differences between participants so the DV might not reflect the effects of the IV (low internal validity)
Repeated Measures	No individual differences, therefore any changes in the DV are likely to reflect the effects of the IV (high internal validity).	There will be order effects. Any changes in the DV might reflect the order of the conditions eg. Fatigue / boredom.
Matched Pairs	Less individual differences therefore higher internal validity.	The act of "matching" participants is time-consuming and challenging.

NOTES

Variables: manipulation and control of variables, including independent, dependent, extraneous, confounding; operationalisation of variables.

What You Need to Know

You need to be able to identify the variable types and apply them to a novel example of research in the examination.

Experimental research definitively involves measuring the effect of one variable on another variable, in the case of lab and field experiments this means that the I.V. is deliberately manipulated so that its impact on the D.V. can be measured.

Extraneous variables are those that are not the immediate focus of the research, and interfere with the researcher's ability to assess what they intend to (the I.V.). Extraneous variables lower the internal validity of research, as they prevent the researcher from measuring what they have set out to measure. Confounding variables are often used synonymously with extraneous variables but these are a particular type of interfering variable which changes according to the level of an I.V. when participants cannot be randomly assigned.

The operationalisation of variables involves the researcher narrowing the focus of these, so that it is clear what is being manipulated and how variables are being measured. This promotes clarity when making conclusions about how one variable affects another. It also makes research more replicable, which means research can be repeated in exactly the same way to establish whether research has produced reliable (consistent) findings.

NOTES

Control: random allocation and counterbalancing, randomisation and standardisation. Demand characteristics and investigator effects.

What You Need to Know

For this section you need to define the methods of control and understand when they should be used.

Random allocation of participants is an extremely important process in research. In order to assess the effect of one variable on another, all variables other than the variable to be investigated need to be controlled. Random allocation greatly decreases systematic error, so individual differences in responses or ability are far less likely to consistently affect results.

Counterbalancing is a method used to deal with extraneous effects caused by order effects that arise when using a repeated measures design. The sample is split in half with one half completing the two conditions in one order and the other half completing the conditions in the reverse order. Eg, the first 10 participants would complete condition A followed by condition B but the remaining 10 participants would complete condition B then A. Any order effects should be balanced out by the opposing half of participants.

Randomisation is used in the presentation of trials to avoid any systematic errors that the order of the trials might present.

Standardisation refers to the process in which procedures used in research are kept the same. Great attention is taken to keep all elements of a procedure identical, so that methods are sensitive to any change in performance. Under these circumstances changes in data can be attributed to the I.V. In addition, it is far more likely that results will be replicated on subsequent occasions when research is standardised, which means that data reflects a meaningful pattern and was not a one-off chance result.

Demand characteristics occur when a participant tries to make sense of the research situation, and as a result changes their behaviour. This distorts results, as a participants might intentionally try to demonstrate what the researcher is investigating, or display the opposite (the screw you effect). Participants sometimes try to present themselves in a positive light rather than producing genuine responses/ behaviours, this is known as social desirability bias.

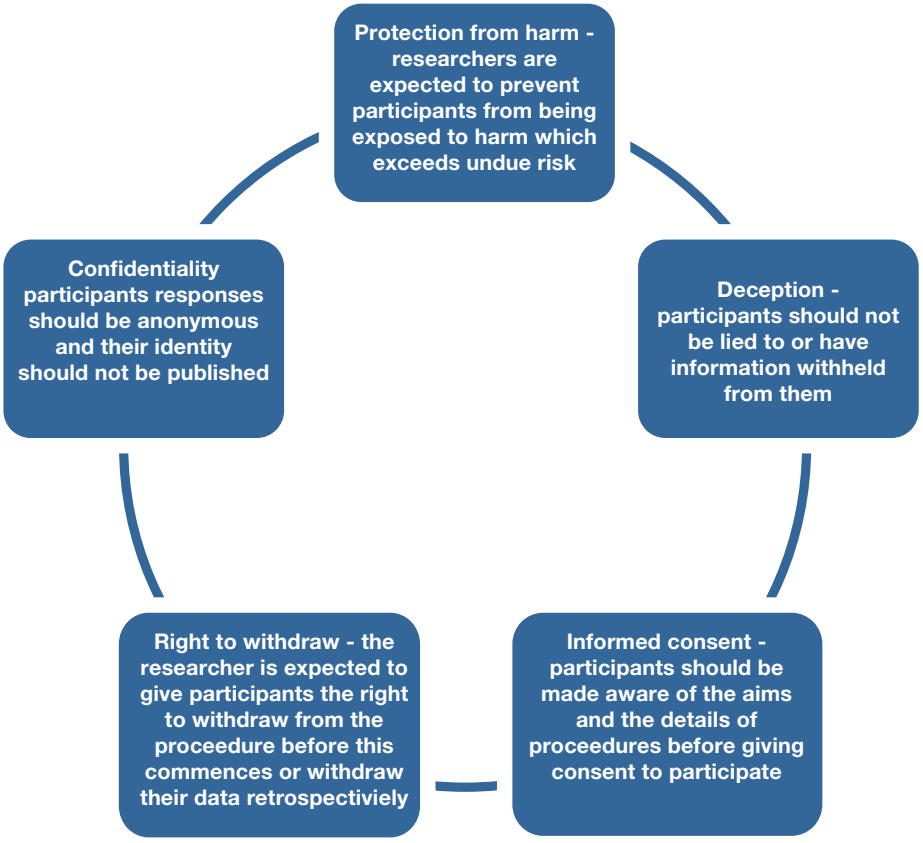
Investigator Effects occur when the presence of the investigator themselves affects the outcome of the research. Eg. during an interview the participants might feel self-conscious or might be influenced by behavioural cues from the researcher (nodding, smiling, frowning etc.).

NOTES

Ethics, including the role of the British Psychological Society's code of ethics; ethical issues in the design and conduct of psychological studies; dealing with ethical issues in research.

What You Need to Know

For this section you need to know the ethical guidelines from the BPS and you need to be able to understand what ethical issues may arise. When ethical issues occur you need to know how to deal with them.



Dealing with ethical issues – The way that psychologists deal with ethical issues should not be confused with the ethical issues themselves. Ethical issues occur when there is a conflict between the rights of participants and the researcher's objectives. The way that ethical issues are dealt with depends on the issue:

Protection from harm	Debriefing - participants should be informed about the real aims of resarch, given the opportunity to ask questions and measures taken to restored them to their original psychological state.
Informed consent	Prior general consent - participants are advised that on occasions not all information about research is made available inorder to check whether particpants are comfortable proceeding.
Confidentiality	Participants are given a code name or number to protect their identity. They should not be any institution or organisation.

The role of peer review in the scientific process

What You Need to Know

You need to know why peer review is necessary in research

Peer review is a process that takes place before a study is published to ensure that the research is of a high quality, contributes to the field of research and is accurately presented. The process is carried out by experts in the related field of research.

Peer review has an important function, as it ensures that only high quality research is disseminated and available as a body of scientific evidence. Such evidence frequently becomes part of mainstream thinking and practice, so it is vital that conclusions that these are based on are the subject of valid methods and accurate presentation. If research was published without this process of review and checking, poor research might be disseminated which would damage the integrity of that field of research, or that of the discipline as a whole. In addition, research often has clear practical applications for society or people's day to day lives; if research was not reviewed to ensure quality, then any recommendations or guidelines could not be founded and may have negative consequences for affected individuals.

Strengths	Limitations
Peer review promotes and maintains high standards in research, which has implications for society and funding allocation so that it is assigned to high quality research. Helps to prevent scientific fraud, as submitted work is scrutinised. It promotes the scientific process through the development and dissemination of accurate of knowledge and contributes new knowledge to the field.	If anonymity is not maintained experts with a conflict of interest might not approve research to further their own reputation or career. Contributes to the "file drawer effect" – as only statistically significant findings are published. This means that findings that challenge existing understanding might be overlooked as they are not published.

The implications of psychological research for the economy.

Given the breadth of psychology as a discipline and the subject matter it deals with, it is extremely difficult to estimate what it contributes directly to the economy. Psychological interventions and research often have far reaching effects that are not readily quantifiable, such as the use psychological interventions to treat mental illness could enable someone to recommence work and in the long-term might be less likely to relapse which has implications in terms of lost tax revenues and greater costs through benefits. Research often informs policy and legislation aimed at improving safety and well-being which could influence productivity in business and reduce NHS costs. In addition the transferrable skills developed through psychological research could offer significant advantages to graduates who go on to utilise these in industry.

NOTES

Reliability across all methods of investigation. Ways of assessing reliability: test-retest and inter-observer; improving reliability.

What You Need to Know

You need to know what reliability is, how you can measure it and how you can improve it.

Reliability relates to whether a research measure or research findings are consistent. If a study is demonstrating something meaningful, it could be assumed that findings can be replicated again at a later point. Reliability can be checked using a split-half method to check internal reliability or test-retest method to assess external reliability.

The split-half method involves taking half of the items from a psychological instrument (eg. questionnaire, personality inventory) and correlating scores from these with scores from the other half. If items are consistently measuring something in a meaningful way the scores should be very similar & produce a strong correlation.

The test-retest method is carried out by correlating scores from the same or similar participants using the same method; if the scores are similar & produce a high correlation co-efficient it can be concluded that the method produces a consistent effect on participants over time.

Inter-observer reliability assesses whether two observers are measuring the same observed behaviours in a consistent way. Observer A's scores are correlated with Observer B's scores; given that the two observer are watching and recording the same behaviour, it is assumed that their scores should be consistent.

With all examples of assessing reliability, it is necessary to correlate two sets of scores to get a measure of the consistency between results. A co-efficient of 0.8 is considered highly reliable.

Standardisation is important to ensure that consistent findings can be recognised. By keeping all parts of research the same, any consistency in data can be confidently attributed to a meaningful trend in data.

NOTES

Types of validity across all methods of investigation: face validity, concurrent validity, ecological validity and temporal validity. Assessment of validity. Improving validity.

What You Need to Know

You need to know what validity is, how you can measure it and how you can improve it.

Internal Validity refers to whether research methods have focused on the aims that were set; have they achieved their purpose? External validity refers to how generalisable findings are; do they represent other situations (ecological) & groups of people (population)?

Internal validity can be assessed by checking its face, concurrent or predictive validity:

- Face validity relates to the judgement of whether research appears to be measuring what it has set out to.
- Concurrent validity involves checking a measure of behaviour against another pre-existing measure to establish if it is producing the same result, such as comparing results from a technique against an established measure (eg. a new stress questionnaire data against the Hassles Scale or the SRRS data).
- Predictive validity measures how well a test can predict future performance. If a technique achieves this there is strong evidence that it is a genuine measure of the behaviour.

Improving validity can be achieved in different ways. Internal validity requires researchers to control any potential extraneous variables so that the effect of the I.V. on the D.V. is apparent. External validity is improved by increasing generalisability either through using a larger more randomised sample or through adopting less controlled conditions (eg. with the use of a natural experiment).

NOTES

Features of science: objectivity and the empirical method; replicability and falsifiability; theory construction and hypothesis testing; paradigms and paradigm shifts.

What You Need to Know

For this section you need to be able to understand what the features of a science are and to be able to define objectivity, the empirical method, replicability and falsifiability, theory construction, hypothesis testing, paradigms and paradigm shifts.

Theory construction – A consideration of theory construction offers an insight into many key features of science. Theories are not the subject of guessing or speculation but an on-going scientific process.

Observations of phenomenon are often the starting point of a hypothesis about the causes of trends in behaviour. A hypothesis should be a directly testable statement which can be proved or disproved (falsifiable). Hypotheses that are supported by data from methodologically sound research which produces objective data can lead to ideas being proved, disproved and refined, with subsequent hypotheses being adjusted accordingly. When sufficient data has been obtained and knowledge developed, these hypotheses can evolve into more developed ideas and theories start to emerge. Crucially though, the theory has stemmed from data collection and observations which are not based on subjective opinion but on-going research findings, meaning that science is a reflective process. Objectivity, empirical methods (objective data collection), the ability to prove and disprove (falsifiability), and hypothesis testing are all fundamental parts of science.

There are conflicting positions regarding the efficacy of the reflective process. Popper argues that the scientific process is entirely objective & follows the cyclical model highlighted above based on hypothesis testing. Progress is made in science in light of new information that challenges existing ideas. However, Kuhn argues that this process if affected by researchers' pre-existing scientific values - the paradigm approach. Kuhn suggests that within respective fields of science conventional paradigms or models of thinking exist, and that research evidence that challenges these tends to be treated with scepticism and its methodology is frequently questioned. Conclusions that support a dominant paradigm are more readily accepted; this process is not value-free and completely objective as Popper would assume. In order for challenging information to be accepted this requires consistent findings which can lead to a radical overhaul of a paradigm leading to "scientific revolution".

NOTES

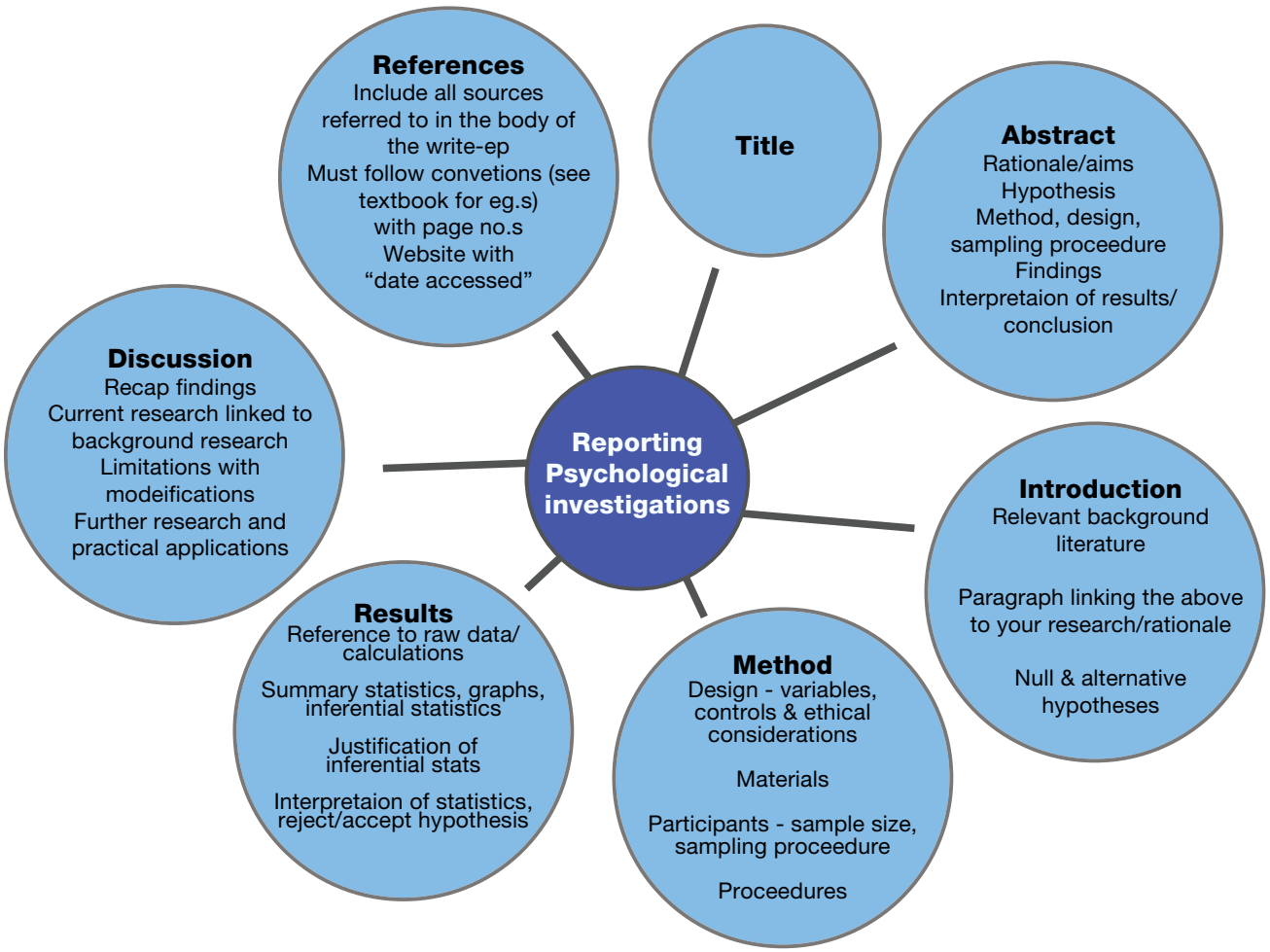
Reporting psychological investigations. Sections of a scientific report: abstract, introduction, method, results, discussion and referencing.

What You Need to Know

You need to know what the various sections of a report on a psychological investigation are and what their purpose is.

The write-up of psychological research follows agreed conventions, which helps promote clarity, standards and fellow researchers' ability to check new publications in a standardised way. It allows researchers to locate information of particular interest, check methods and locate the wider body of research that the author has consulted.

A summary of the sections conventionally included in a report



Quantitative and qualitative data; the distinction between qualitative and quantitative data collection techniques.

What You Need to Know

You need to be able to know the difference between quantitative and qualitative data for this section and to be able to define each type.

Quantitative data is numerical data which can be statistically analysed. Experiments, observations, correlations and closed/ rating scale questions from questionnaires all produce quantitative data. It is used within hypothesis testing to ascertain the likelihood of results being due to chance, so it is extremely important part of scientific research.

Qualitative data is non-numerical language-based data collected through interviews, open questions and consulted during content analysis. It allows researchers to develop insights into the nature of experiences, opinions and feelings and why trends occur.

Sometimes research will used mixed methods, collecting both quantitative data and qualitative data.

Primary and secondary data, including meta-analysis.

Primary data refers to data which has been collected and reported by the original researcher, so when reading a published academic journal you are consulting the primary source and data. Sometimes, however, data is cited, re-analysed or calculated alongside additional data to develop averages or overall effect sizes or published in subsequent sources. Although this can be useful to gather a summary of literature or data, it is subject to another researcher/ author's interpretation. In the case of meta-analyses, researchers combine findings from multiple studies to make overall statistical analyses.

NOTES

Descriptive statistics: measures of central tendency – mean, median, mode; calculation of mean, median and mode; measures of dispersion; range and standard deviation; calculation of range; calculation of percentages; positive, negative and zero correlations.

What You Need to Know

You need to be able to understand all the mathematical terms in the title for this section. You also need to be able to calculate the measures of central tendency, a range, percentages and recognise positive, negative and zero correlations.

Measures of central tendency are another way of summarising data:

- **Mean** – add all scores in a set & divide by the number of scores.
- **Median** – place all data into rank order & locate the middle value.
- **Mode** – the most frequent value.

Measures of dispersion show how variable or spread out a set of data are; whether the values are highly similar or dissimilar.

Range – the lowest value is subtracted from the highest value.

Standard deviation (S.D.) – once the mean score is calculated, the difference between each particular value and the mean is identified, and used to calculate the overall amount of difference between scores.

Presentation and display of quantitative data: graphs, tables, scattergrams, bar charts, histograms

Graphical techniques are used to summarise data, in a visually accessible way. Tables also help summarise data clearly.
Bar charts are used to show frequency data for discrete (separate) variables. Eg. used to plot mean scores for Condition A & B separately.

Histograms are used to show frequency data for continuous variables. Eg. used to plot scores for which are presented in intervals which follow on from each other, such as 1-4, 5-8, 9-12 etc.

Scattergrams are used to show a correlation between 2 variables, producing a positive or negative correlation.

Distributions: normal and skewed distributions; characteristics of normal and skewed distributions

How data is distributed is of interest to psychologists as this tells us how frequent scores are and whether they follow a pattern. Whether data is normally distributed is often considered by psychologists, as it can be used to identify the percentage of individuals that have produced a particular score and this type of distribution is required to use certain inferential tests. Data that is normally distribution produces a symmetrical bell-shaped curve when plotted, indicating that most scores are close to the mean, with a progressively fewer scores being located at the extremes of either tail of the distribution.

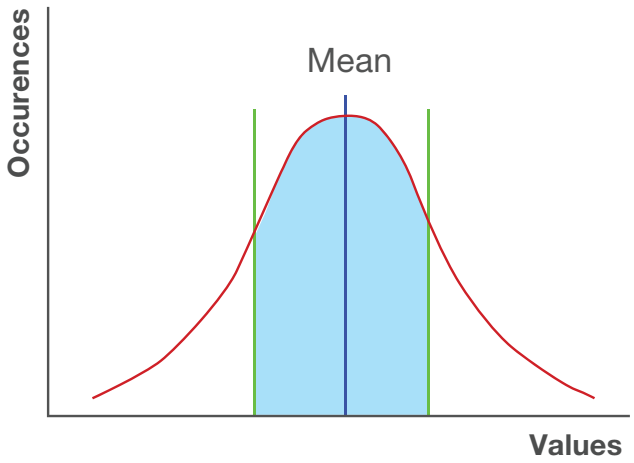


Diagram of a normal distribution

Note that an equal number of values fall either side of the mean and that there are fewer occurrences of each value as they move further from the mean.

However, sometimes data does not follow this pattern and can either have a majority of scores falling below the mean (positively skewed) or after the mean (negatively skewed).

Levels of measurement: nominal, ordinal and interval

The level of measurement describes the nature of data being investigated that the researcher has chosen to use. The researcher might choose to categorise data, want to identify which scores are higher than others or depending on the behaviour/ area of interest might be dealing with data where the difference between each unit is meaningful.

Nominal	Data is placed into discrete categories producing a frequency for each separate category.
Ordinal	Data can be ranked from lowest to highest although this is not necessarily meaningful as the unit of measurement is not equally distributed.
Interval	Data can be used to meaningfully identify the magnitude of scores, so that a score which is twice the size of another score genuinely is double the size.

NOTES

Probability and significance: use of statistical tables and critical values in interpretation of significance; Type I and Type II errors.

What You Need to Know

For this section you need to be able to understand what probability and significance are and how to work them out using statistical tables (including critical values). It is important you understand what type 1 and type 2 errors are.

Probability testing is intrinsically linked to the hypotheses developed for research. Research requires the development of 2 hypotheses – the null and an alternative. As the null predicts that data is due to chance, the researcher aims to disprove this, so that they can accept the alternative hypothesis. Inferential tests are used by the researcher to calculate the likelihood that results are due to chance. If the probability that results are due to chance is very low, the researcher can then reject the null and conclude that their results are meaningful.

Once an inferential test has been conducted it produces an observed value. This value is checked against a critical value in order to establish whether results are significant or not, so that the null hypothesis can be retained/ rejected.

Important – many levels of significance are listed in critical value tables, however, within the context of psychology the researcher must establish significance at 5% or lower; in other words, if there is a 5% probability that results are due to chance the null is rejected and the alternative accepted – the 5% value is very important!

Researchers want to minimise the probability of chance so if findings were significant at 5% and 1%, you always report the lower figure – researchers would prefer there to be a 1% probability that their data is random than a 5% probability – the lower the better!

Choosing a critical value

There are various factors that determine the critical value that should be consulted:

- N = Sample size (the size of group)
- Type of hypothesis (Directional = 1-tailed or Non directional = 2-tailed)
- Level of significance (start at 0.05/ 5% & work downwards eg. 0.01, 0.001 etc.)

Note that when using the Chi Squared test the degrees of freedom (df) are consulted rather than N. df can be calculated by consulting the number of rows of data minus 1 multiplied by the number of columns of data minus 1 (R-1)(C-1).

In contrast to observed values which are calculated with raw scores, critical values are pre-existing values which can be used to tell us the probability that a population of data is due to chance; these are organised into tables of critical values. Once the researcher has calculated their observed value and located their critical value these can be checked to see if they are significant. Depending on the inferential test being used, the researcher will want their observed value to be bigger or smaller than the critical value located.

Tip – Carefully check the critical value table for clarification to establish whether you want the observed value to be bigger or smaller. Remember the observed value is the value that has been calculated using the inferential test.

Type 1 & Type 2 Errors

Type 1 errors are false positives – they occur when an alternative hypothesis is accepted even though results are due to chance. This occurs with the same level of frequency as the level of significance that the researcher achieves. So if $p \leq 0.05$, there is a 5% chance that results are random, leading to the alternative hypothesis being accepted, however, that means that 5% of the time results are in fact due to chance as the null hypothesis would predict.

Type 2 errors are false negatives – they occur when a null hypothesis is accepted even though results are not due to chance. This means that a meaningful relationship/ difference has not been detected and has been overlooked.

Factors affecting the choice of statistical test, including level of measurement and experimental design. When to use the following tests: Spearman's rho, Pearson's r, Wilcoxon, Mann-Whitney, related t-test, unrelated t-test and Chi-Squared test.

What You Need to Know

You need to be able to choose and appropriate inferential statistical test and be able to justify why you chose that test. You can only be asked about the ones stated in the specification. You do not need to be able to calculate the tests.

In order to use each inferential test (formula) certain assumptions relating to method, design and the type of data must be met:

Inferential Test	Observed Value	Method	Experimental Design	Type/ Level of data
Spearman's Rank	rs	Correlation (test of relationship)	N/A	At least ordinal
Chi Squared	X	Experiment (test of association)	Independent groups	Non-parametric Nominal
Mann Whitney U	U	Experiment (test of difference)	Independent groups	At least ordinal
Wilcoxon Signed Ranks	T	Experiment (test of difference)	Repeated Measures	At least ordinal
Pearson's	r	Correlation (test of relationship)	N/A	Parametric
related t-test	t	Experiment (test of difference)	Repeated Measures	Parametric
unrelated t-test	t	Experiment (test of difference)	Independent groups	Parametric

Key Terms:

≤ - Less than or equal to

≥ - Greater than or equal to

Parametric Data – Interval level data which is normally distributed and is equally spread across sets of data.

Non-parametric Data – Data that does not meet the above assumptions

Introduction to statistical testing; the sign test.

What You Need to Know

You need to be able to understand when a sign test might be used and how to calculate one.

Inferential tests are statistical formulae that are used by researchers to establish the likelihood of their results being due to chance.

The sign test is used to test the null hypothesis that the median of a distribution is equal to some value. It is used to investigate whether there are meaningful differences between pairs of scores and requires data values to be converted into plus and minus signs:

Participant	Control Score	Experimental Score	Control minus Experimental
1	20	19	-1
2	12	13	+1
3	15	15	0
4	18	14	-4
5	12	10	+2
6	18	20	-2
7	10	15	+5
8	18	18	0
9	13	16	+3
10	11	14	+3

The number in the last column is not of immediate interest but whether it is a minus value or not is counted:

Minus values	Plus values
3	5

S = the less frequent of the minus or positive values – therefore S = 3
N = the total number of plus and minus values – therefore N = 8

S = the observed value can then be checked against a critical value.

	Level of significance – **one-tailed test**		
n	α = .01	α = .02	α = **.05**
3			
4			
5			0
6		0	0
7		0	1
8	0	0	**1**
9	0	1	1
10	0	1	1

S must be equal to or less than the stated critical value to be significant.

Assuming that the research has used a non- directional (one-tailed) hypothesis, the critical value would = 1 at a 5% level of significance. As the observed value of S = 3 is greater than the critical value, the result is not significant and the null hypothesis would have to be accepted.

NOTES

KEY TERMS	
Aim	The researcher's area of interest – what they are looking at (e.g. to investigate helping behaviour).
Bar chart	A graph that shows the data in the form of categories (e.g. behaviours observed) that the researcher wishes to compare.
Behavioural categories	Key behaviours or, collections of behaviour, that the researcher conducting the observation will pay attention to and record
Case study	In-depth investigation of a single person, group or event, where data are gathered from a variety of sources and by using several different methods (e.g. observations & interviews).
Closed questions	Questions where there are fixed choices of responses e.g. yes/no. They generate quantitative data
Co-variables	The variables investigated in a correlation
Concurrent validity	Comparing a new test with another test of the same thing to see if they produce similar results. If they do then the new test has concurrent validity
Confidentiality	Unless agreed beforehand, participants have the right to expect that all data collected during a research study will remain confidential and anonymous.
Confounding variable	An extraneous variable that varies systematically with the IV so we cannot be sure of the true source of the change to the DV
Content analysis	Technique used to analyse qualitative data which involves coding the written data into categories – converting qualitative data into quantitative data.
Control group	A group that is treated normally and gives us a measure of how people behave when they are not exposed to the experimental treatment (e.g. allowed to sleep normally).
Controlled observation	An observation study where the researchers control some variables - often takes place in laboratory setting
Correlational analysis	A mathematical technique where the researcher looks to see whether scores for two covariables are related
Counterbalancing	A way of trying to control for order effects in a repeated measures design, e.g. half the participants do condition A followed by B and the other half do B followed by A
Covert observation	Also known as an undisclosed observation as the participants do not know their behaviour is being observed
Critical value	The value that a test statistic must reach in order for the hypothesis to be accepted.
Debriefing	After completing the research the true aim is revealed to the participant. Aim of debriefing = to return the person to the state s/he was in before they took part.
Deception	Involves misleading participants about the purpose of s study.
Demand characteristics	Occur when participants try to make sense of the research situation they are in and try to guess the purpose of the research or try to present themselves in a good way.
Dependent variable	The variable that is measured to tell you the outcome.
Descriptive statistics	Analysis of data that helps describe, show or summarize data in a meaningful way
Directional hypothesis	A one-tailed hypothesis that states the direction of the difference or relationship (e.g. boys are more helpful than girls).
Dispersion measure	A dispersion measure shows how a set of data is spread out, examples are the range and the standard deviation
Double blind control	Participants are not told the true purpose of the research and the experimenter is also blind to at least some aspects of the research design.
Ecological validity	The extent to which the findings of a research study are able to be generalized to real-life settings
Ethical guidelines	These are provided by the BPS - they are the 'rules' by which all psychologists should operate, including those carrying out research.
Ethical issues	There are 3 main ethical issues that occur in psychological research – deception, lack of informed consent and lack of protection of participants.
Evaluation apprehension	Participants' behaviour is distorted as they fear being judged by observers
Event sampling	A target behaviour is identified and the observer records it every time it occurs
Experimental group	The group that received the experimental treatment (e.g. sleep deprivation)

External validity	Whether it is possible to generalise the results beyond the experimental setting.
Extraneous variable	Variables that if not controlled may affect the DV and provide a false impression than an IV has produced changes when it hasn't.
Face validity	Simple way of assessing whether a test measures what it claims to measure which is concerned with face value – e.g. does an IQ test look like it tests intelligence.
Field experiment	An experiment that takes place in a natural setting where the experimenter manipulates the IV and measures the DV
Histogram	A graph that is used for continuous data (e.g. test scores). There should be no space between the bars, because the data is continuous.
Hypothesis	This is a formal statement or prediction of what the researcher expects to find. It needs to be testable.
Independent groups design	An experimental design where each participants only takes part in one condition of the IV
Independent variable	The variable that the experimenter manipulates (changes).
Inferential statistics	Inferential statistics are ways of analyzing data using statistical tests that allow the researcher to make conclusions about whether a hypothesis was supported by the results.
Informed consent	Psychologists should ensure that all participants are helped to understand fully all aspects of the research before they agree (give consent) to take part
Inter-observer reliability	The extent to which two or more observers are observing and recording behaviour in the same way
Internal validity	In relation to experiments, whether the results were due to the manipulation of the IV rather than other factors such as extraneous variables or demand characteristics.
Interval level data	Data measured in fixed units with equal distance between points on the scale
Investigator effects	These result from the effects of a researcher's behaviour and characteristics on an investigation.
Laboratory experiment	An experiment that takes place in a controlled environment where the experimenter manipulates the IV and measures the DV
Matched pairs design	An experimental design where pairs of participants are matched on important characteristics and one member allocated to each condition of the IV
Mean	Measure of central tendency calculated by adding all the scores in a set of data together and dividing by the total number of scores
Measures of central tendency	A measurement of data that indicates where the middle of the information lies e.g. mean, median or mode
Median	Measure of central tendency calculated by arranging scores in a set of data from lowest to highest and finding the middle score
Meta-analysis	A technique where rather than conducting new research with participants, the researchers examine the results of several studies that have already been conducted
Mode	Measure of central tendency which is the most frequently occurring score in a set of data
Natural experiment	An experiment where the change in the IV already exists rather than being manipulated by the experimenter
Naturalistic observation	An observation study conducted in the environment where the behaviour would normally occur
Negative correlation	A relationship exists between two covariables where as one increases, the other decreases
Nominal level data	Frequency count data that consists of the number of participants falling into categories. (e.g. 7 people passed their driving test first time, 6 didn't).
Non-directional hypothesis	A two-tailed hypothesis that does not predict the direction of the difference or relationship (e.g. girls and boys are different in terms of helpfulness).
Normal distribution	An arrangement of a data that is symmetrical and forms a bell shaped pattern where the mean, median and mode all fall in the centre at the highest peak
Observed value	The value that you have obtained from conducting your statistical test
Observer bias	Occurs when the observers know the aims of the study or the hypotheses and allow this knowledge to influence their observations
Open questions	Questions where there is no fixed response and participants can give any answer they like. They generate qualitative data.

Operationalising variables	This means clearly describing the variables (IV and DV) in terms of how they will be manipulated (IV) or measured (DV).
Opportunity sample	A sampling technique where participants are chosen because they are easily available
Order effects	Order effects can occur in a repeated measures design and refers to how the positioning of tasks influences the outcome e.g. practice effect or boredom effect on second task
Ordinal level data	Data that is capable of being out into rank order (e.g. places in a beauty contest, or ratings for attractiveness).
Overt observation	Also known as a disclosed observation as the participants given their permission for their behaviour to be observed
Participant observation	Observation study where the researcher actually joins the group or takes part in the situation they are observing.
Peer review	Before going to publication, a research report is sent other psychologists who are knowledgeable in the research topic for them to review the study, and check for any problems
Pilot study	A small scale study conducted to ensure the method will work according to plan. If it doesn't then amendments can be made.
Positive correlation	A relationship exists between two covariables where as one increases, so does the other
Presumptive consent	Asking a group of people from the same target population as the sample whether they would agree to take part in such a study, if yes then presume the sample would
Primary data	Information that the researcher has collected him/herself for a specific purpose e.g. data from an experiment or observation
Prior general consent	Before participants are recruited they are asked whether they are prepared to take part in research where they might be deceived about the true purpose
Probability	How likely something is to happen – can be expressed as a number (0.5) or a percentage (50% change of tossing coin and getting a head)
Protection of participants	Participants should be protected from physical or mental health, including stress - risk of harm must be no greater than that to which they are exposed in everyday life
Qualitative data	Descriptive information that is expressed in words
Quantitative data	Information that can be measured and written down with numbers.
Quasi experiment	An experiment often conducted in controlled conditions where the IV simply exists so there can be no random allocation to the conditions
Questionnaire	A set of written questions that participants fill in themselves
Random sampling	A sampling technique where everyone in the target population has an equal chance of being selected
Randomisation	Refers to the practice of using chance methods (e.g. flipping a coin' to allocate participants to the conditions of an investigation
Range	The distance between the lowest and the highest value in a set of scores.
Range	A measure of dispersion which involves subtracting the lowest score from the highest score in a set of data
Reliability	Whether something is consistent. In the case of a study, whether it is replicable.
Repeated measures design	An experimental design where each participants takes part in both/all conditions of the IV
Representative sample	A sample that closely matched the target population as a whole in terms of key variables and characteristics
Retrospective consent	Once the true nature of the research has been revealed, participants should be given the right to withdraw their data if they are not happy.
Right to withdraw	Participants should be aware that they can leave the study at any time, even if they have been paid to take part.
Sample	A group of people that are drawn from the target population to take part in a research investigation
Scattergram	Used to plot correlations where each pair of values is plotted against each other to see if there is a relationship between them.
Secondary data	Information that someone else has collected e.g. the work of other psychologists or government statistics

Semi-structured interview	Interview that has some pre-determined questions, but the interviewer can develop others in response to answers given by the participant
Sign test	A statistical test used to analyse the direction of differences of scores between the same or matched pairs of subjects under two experimental conditions
Significance	If the result of a statistical test is significant it is highly unlikely to have occurred by chance
Single-blind control	Participants are not told the true purpose of the research
Skewed distribution	An arrangement of data that is not symmetrical as data is clustered to one end of the distribution
Social desirability bias	Participants' behaviour is distorted as they modify this in order to be seen in a positive light.
Standard deviation	A measure of the average spread of scores around the mean. The greater the standard deviation the more spread out the scores are. .
Standardised instructions	The instructions given to each participant are kept identical – to help prevent experimenter bias.
Standardised procedures	In every step of the research all the participants are treated in exactly the same way and so all have the same experience.
Stratified sample	A sampling technique where groups of participants are selected in proportion to their frequency in the target population
Structured interview	Interview where the questions are fixed and the interviewer reads them out and records the responses
Structured observation	An observation study using predetermined coding scheme to record the participants' behaviour
Systematic sample	A sampling technique where every nth person in a list of the target population is selected
Target population	The group that the researchers draws the sample from and wants to be able to generalise the findings to
Temporal validity	Refers to how likely it is that the time period when a study was conducted has influenced the findings and whether they can be generalised to other periods in time
Test-retest reliability	Involves presenting the same participants with the same test or questionnaire on two separate occasions and seeing whether there is a positive correlation between the two
Thematic analysis	A method for analysing qualitative data which involves identifying, analysing and reporting patterns within the data
Time sampling	A way of sampling the behaviour that is being observed by recording what happens in a series of fixed time intervals.
Type 1 error	Is a false positive. It is where you accept the alternative/experimental hypothesis when it is false
Type 2 error	Is a false negative. It is where you accept the null hypothesis when it is false
Unstructured interview	Also know as a clinical interview, there are no fixed questions just general aims and it is more like a conversation
Unstructured observation	Observation where there is no checklist so every behaviour seen is written down in an much detail as possible
Validity	Whether something is true – measures what it sets out to measure.
Volunteer sample	A sampling technique where participants put themselves forward to take part in research, often by answering an advertisement