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# Psychology

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## Research Methods

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# Brilliant Model Answers

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# Contents

# Specification: Research Methods

## Reserch Methods in Psychology

AQA

| AS-LEVEL SPECIFICATION | A-LEVEL SPECIFICATION |
|---|---|
| **3.2.3 Research methods**<br><br>Students should demonstrate knowledge and understanding of the following research methods, scientific processes and techniques of data handling and analysis, be familiar with their use and be aware of their strengths and limitations:<br><br>• Experimental method. Types of experiments, laboratory and field experiments; natural and quasi-experiments.<br>• Observational techniques. Types of observation: naturalistic and controlled observation; covert and overt observation; participant and non-participant observation.<br>• Self-report techniques. Questionnaires; interviews, structured and unstructured.<br>• Correlations. Analysis of the relationship between co-variables. The difference between correlations and experiments. | **4.2.3 Research methods**<br><br>Students should demonstrate knowledge and understanding of the following research methods, scientific processes and techniques of data handling and analysis, be familiar with their use and be aware of their strengths and limitations.<br><br>• Experimental method. Types of experiments; laboratory and field experiments; natural and quasi-experiments.<br>• Observational techniques. Types of observation: naturalistic and controlled observation; covert and overt observation; participant and non-participant observation.<br>• Self-report techniques. Questionnaires; interviews, structured and unstructured.<br>• Correlations. Analysis of the relationship between co-variables. The difference between correlations and experiments.<br>• Content analysis.<br>• Case studies. |
| **3.2.3.1 Scientific processes**<br><br>• Aims, stating aims, the difference between aims and hypotheses.<br>• Hypotheses: directional and non-directional.<br>• Sampling: the difference between population and sample; sampling techniques including: random, systematic, stratified, opportunity and volunteer; implications of sampling techniques, including bias and generalisation.<br>• Pilot studies and the aims of piloting.<br>• Experimental designs: repeated measures, independent groups, matched pairs.<br>• Observational design: behavioural categories; event sampling; time sampling.<br>• Questionnaire construction, including use of open and closed questions; design of interviews.<br>• Variables: manipulation and control of variables; including independent, dependent, extraneous, confounding; operationalisation of variables.<br>• Control: random allocation and counterbalancing, randomisation and standardisation.<br>• | **4.2.3.1 Scientific processes**<br><br>• Aims: stating aims, the difference between aims and hypotheses.<br>• Hypotheses: directional and non-directional.<br>• Sampling: the difference between population and sample; sampling techniques including: random, systematic, stratified, opportunity and volunteer; implications of sampling techniques, including bias and generalisation.<br>• Pilot studies and the aims of piloting.<br>• Experimental designs, repeated measures, independent groups, matched pairs.<br>• Observational design: behavioural categories; event sampling; time sampling.<br>• Questionnaire construction, including use of open and closed questions; design of interviews.<br>• Variables: manipulation and control of variables, including independent, dependent, extraneous, confounding; operationalisation of variables.<br>• Control: random allocation and counterbalancing, randomisation and standardisation.<br>• Demand characteristics and investigator effects.<br>• 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.<br>• The role of peer review in the scientific process. |

| | |
|---|---|
| Demand characteristics and investigator effects.<br>• 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.<br>• The role of peer review in the scientific process.<br>• The implications of psychological research for the economy. | • The implications of psychological research for the economy.<br>• Reliability across all methods of investigation. Ways of assessing reliability test-retest and inter-observer; improving reliability.<br>• Types of validity across all methods of investigation: face validity, concurrent validity, ecological validity and temporal validity. Assessment of validity. Improving validity.<br>• Features of science: objectivity and the empirical method; replicability and falsifiability; theory construction and hypothesis testing; paradigms and paradigm shifts.<br>• Reporting psychological investigations. Sections of a scientific report: abstract, introduction, method, results, discussion and referencing. |
| 3.2.3.2 Data handling and analysis<br><br>Quantitative and qualitative data; the distinction between qualitative and quantitative data collection techniques.<br>• Primary and secondary data, including meta-analysis.<br>• 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.<br>• Presentation and display of quantitative data: graphs, tables, scattergrams, bar charts and histograms.<br>• Distributions: normal and skewed distributions; characteristics of normal and skewed distributions.<br>• Introduction to statistical testing; the sign test. When to use the sign test; calculation of the sign test. | 4.2.3.2 Data handling and analysis<br><br>Quantitative and qualitative data; the distinction between qualitative and quantitative data collection techniques.<br>• Primary and secondary data, including meta-analysis.<br>• 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.<br>• Presentation and display of quantitative data: graphs, tables, scattergrams, bar charts and histograms.<br>• Distributions: normal and skewed distributions; characteristics of normal and skewed distributions.<br>• Analysis and interpretation of correlation, including correlation coefficients.<br>• Levels of measurement: nominal, ordinal and interval.<br>• Content analysis and coding. Thematic analysis. |
| | 4.2.3.3 Inferential testing<br><br>Students should demonstrate knowledge and understanding of inferential testing and be familiar with the use of inferential tests.<br>• Introduction to statistical testing; the sign test. When to use the sign test; calculation of the sign test.<br>• Probability and significance: use of statistical tables and critical values in the interpretation of significance; Type I and Type II errors.<br>• 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 Cap C and cap S test. |

## Please note

Some sections within this topic cover both AS and A-level subjects and others cover subjects for A-level only. Check the specifications on this page and the following page for details. A-level only subjects are also clearly marked in the specific Exam Notes.

# Aims, Hypotheses and Variables

**Q1** Explain what is meant by the term 'aim' in psychological research. **[2 marks]**

An aim is a general statement that describes the purpose of the study, so people have a general idea of what the research is about.

**Q2** Explain what is meant by the term 'hypothesis' in psychological research. **[2 marks]**

A hypothesis is a specific and precise testable statement that involves making a prediction between the two variables or more that the researcher wants to investigate.

**Q3** Explain what is meant by the term 'directional hypothesis' in psychological research. **[2 marks]**

A directional hypothesis predicts that there will be a difference in the results and predicts the direction the results will go in.

**Q4** Give one reason why researchers may decide to use a directional hypothesis in their study. **[2 marks]**

Researchers may use a directional hypothesis because similar research carried out before has produced results that have gone in a particular direction.

**Q5** Explain what is meant by the term 'non-directional hypothesis' in psychological research. **[2 marks]**

A non-directional hypothesis does not predict the direction the results will go in – they could go either way.

**Q6** Give one reason why researchers may decide to use a non-directional hypothesis in their study. **[2 marks]**

A non-directional hypothesis may be used when similar research carried out before has produced unclear or contradictory results, so the researcher is not sure what the outcome will be.

**Q7** Explain what is meant by the term 'operationalisation'. **[2 marks]**

Operationalisation is the process of converting the variables in a research study into a form that can be tested and measured in practical terms.

**Q8** A team of psychologists carried out an investigation to find out whether people who had insecure attachment types in their childhood experience more difficulties in romantic relationships in adulthood than those who had a secure attachment type in childhood. One hundred participants took part in the study by answering a questionnaire.

Identify the aim of the study. **[2 marks]**

The aim of the study was to see whether the type of attachment in childhood influences relationships in adulthood.

**Q9** Geiselman et al. (1986) carried out a laboratory experiment to see whether the cognitive interview technique is more effective compared to standard interviewing. Participants initially viewed a video clip of a simulated crime scene. Two days later, they were interviewed face-to-face by police officers using either the cognitive interviewing technique or standard interviewing. The psychologist found that the cognitive interview produced more correct information recall than the standard interview.

(a) Identify the aim of the study. **[1 mark]**

(b) Write a directional hypothesis for this experiment. **[2 marks]**

(c) Write a non-directional hypothesis for this experiment. **[2 marks]**

(a) To investigate effectiveness of the cognitive interview technique compared to a standard interview when used on witnesses to recall information.

(b) Participants who watched a crime scene will recall more information from the video clip using the cognitive interview than the standard interview method.

(c) There will be no difference in the amount of information recalled when using the cognitive interview technique or the standard interview on participants who watched a video clip of a crime scene.

**Q10** A psychologist carried out an experiment to see whether the older you become, the less information you can correctly recall from short-term memory. In the young group, participants were aged between 15 and 35 years and in the elderly group, they were aged 70-90 years. The two groups of participants were presented with a list of words of everyday shopping items and asked to recall the words immediately in the correct order.

(a) Write a suitable aim for this study. **[1 mark]**

(b) Write a suitable non-directional hypothesis for this study. **[2 marks]**

(a) A suitable aim for this study would be to see if age has an effect on short-term memory.

(b) There will be a difference in how many words are correctly recalled by young people and elderly people.

**Q11** In a study by Conrad (1964), participants were shown a sequence of six consonant letters that were acoustically similar (sounded the same) such as D, P, T, B, L, V, or acoustically dissimilar such as K, Z, W, R, Y. The participants had to write down as many letters as they could in the order the letters were given to them. The researcher found that the participants would make more recall errors in the order of letters if they were acoustically similar than if they were acoustically dissimilar.

(a) Write a non-directional hypothesis for this experiment. **[2 marks]**

(b) What is the independent variable (IV) in this study? **[2 marks]**

(c) What is the dependent variable (DV) in this study? **[2 marks]**

(a) There will be a difference in recall error from participants when acoustically similar letters are recalled than when recalling acoustically dissimilar letters.

(b) The IV is the different types of consonant letters (acoustically similar or acoustically dissimilar).

(c) The DV is the number of recall errors made by the participants.

**Q12** Godden and Baddeley (1975) tested the theory that recalling information is better if the setting (environment) is similar to that in which the information was originally learned.

To conduct this experiment, underwater divers had to learn a list of words and then recall the words in the same setting or in a different type of setting. Learning underwater, then recalling underwater or learning on land and recalling underwater. They found that words that were learned and recalled in the same context were remembered better.

(a) Write a directional hypothesis for this experiment. **[2 marks]**

(b) What is the independent variable (IV) in this study? **[2 marks]**

(c) What is the dependent variable (DV) in this study? **[2 marks]**

(a) Participants are more likely to recall more words when recalling in an environmental setting that is similar than when recalling words where the environmental setting is not similar.

(b) The IV is the different or similar setting in which participants have to learn a list of words.

(c) The DV is the number of words recalled by the participants.

**Q13** A psychologist carried out an experiment to investigate the duration of information in short-term memory without rehearsing the information (without repeating it). Participants were shown nonsense letters such as GKL, then immediately followed by a three-digit number such as 882. They were then asked to count backwards in threes from the number shown, to prevent rehearsing the letters. The participants were tested at different time intervals of 3, 6, 9, 12, 15 or 18 seconds, and at the end of these intervals, they were asked to recall the letters in the correct order.

(a) Write an aim for this study. **[2 marks]**

(b) What is the independent variable (IV) in this study? **[2 marks]**

(c) What is the dependent variable (DV) in this study? **[2 marks]**

(a) To investigate how long information remains in STM when rehearsal is prevented.

(b) The IV is the various time delays in seconds (e.g. 6, 9, 18 seconds) after the nonsense letters were presented.

(c) The DV is measuring how many of the nonsense letters were correctly recalled by the participants.

**Q14** A team of psychologists carried a study to see whether they could find evidence that short-term memory and long-term memory are separate memory stores. The psychologists decided to test this by carrying out a memory recall test.

The participants were divided into two groups. Group one presented with a list of words, one at a time, and then asked to immediately recall the words. Group two was also given the list of words but there was a delay of 30 seconds during which the participants had to count backwards for 30 seconds before they had to recall the words.

(a) What is the independent variable (IV) in this study? **[2 marks]**

(b) What is the dependent variable (DV) in this study? **[2 marks]**

(a) The independent variables are recalling the words immediately or a delay of 30 seconds.

(b) The dependent variable is the number of words correctly recalled by the participants.

**Q15** A psychologist conducted an experiment to investigate how long information is held in long-term memory. The psychologist selected a sample of 200 ex-students who had attended the same school and left between 5 months and 50 years ago. The ex-students were shown photographs of the students in their year. One group of participants carried out a recall test in which they were asked to simply remember and list as many names of their ex-classmates as possible. The other group of participants were given a recognition test, in which they were given the names of their ex-classmates and asked to match the names to the photos.

(a) What type of experiment was used in this study? **[1 mark]**

(b) What is the independent variable (IV) in this study? **[2 marks]**

(c) What is the dependent variable (DV) in this study? **[2 marks]**

(a) Natural experiment.

(b) The independent variables is the different number of years since students had left school and the different types of methods of memory recall (recall test and recognition test).

(c) The dependent variable is the amount of names and matching of photos to names that were recalled correctly.