Aims and hypotheses

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Core ideas

An aim states the general purpose of a study in clear, student-friendly terms.

A hypothesis is a testable prediction about what the researcher expects to find.

A directional hypothesis predicts the direction of a difference or relationship.

A non-directional hypothesis predicts a difference or relationship without saying which way it will go.

A null hypothesis predicts no significant difference or relationship between the variables.

Good hypotheses use clear, measurable variables so the study can be tested and interpreted.

Key terms

Aim: The general purpose or question of a study.

Hypothesis: A testable prediction about the expected result.

Directional hypothesis: A prediction that states which way a difference or relationship will go.

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Continued

Non-directional hypothesis: A prediction that states there will be a difference or relationship but not its direction.

Null hypothesis: A prediction that there will be no significant difference or relationship.

Variable: A factor that can change or be measured.

Prediction: A statement about what is expected to happen.

Testable: Written so evidence can be collected to check it.

Further detail and evidence

A directional alternative hypothesis is also called one-tailed; a non-directional alternative hypothesis is also called two-tailed. Recognise both forms and the null hypothesis; statistical-test calculations are outside the 2027 syllabus.

An aim states what will be investigated. An alternative hypothesis predicts a difference or association; directional/one-tailed specifies its direction, while non-directional/two-tailed does not. A null predicts no population effect or relationship, with observed sample differences attributable to chance variation.

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Applying the ideas

Directional: adults listening in silence will recall more target words than adults hearing the specified background music. Non-directional: recall scores will differ between the conditions. Null: there will be no difference in recall scores between conditions beyond chance. Define the listening conditions and correct-word score clearly.

Worked example: Write a directional hypothesis for a study on sleep and memory. Participants who sleep for eight hours before a memory test will recall more words than participants who sleep for four hours. This is directional because it predicts which sleep group will have the higher memory score. It is testable because sleep duration and number of words recalled can be measured.

Worked example: Compare an aim with a hypothesis using a simple example. An aim could be to investigate whether background music affects concentration. A hypothesis is more specific, such as: students who work in silence will complete more concentration-task items correctly than students who work with background music. The aim gives the broad purpose, while the hypothesis predicts a measurable result.

Evaluation and connections

Use "relationship" for a correlation and "difference" for a comparison. Avoid vague predictions such as "music affects people". Hypotheses are general methods content and required in Paper 4 plans; the 2027 Paper 2 planning task does not require aims or hypotheses.