

# **CAIE Psychology A-level**

# Non-Experimental Research Methods

Notes

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## Non-experimental research method: Involves the collection and analysis of data when a variable is not or cannot be manipulated

### Types of non-experimental research methods: self-reports, case studies, observations, correlations

Method	Definition
Observation	A research technique where a researcher watches or listens to participants engaging in whatever behaviour is being studied. The observations are recorded. There are naturalistic or controlled observations, covert or overt and participant or non-participant.
Correlation	A correlation is used to measure the extent of a relationship between two quantitative variables, neither of which is manipulated by the experimenter. There may be no correlation, they may both increase together (positive correlation) or as one increases the other decreases (negative correlation). Remember: correlation does not imply causation!
Case Study	A research investigation that involves a <b>detailed study</b> of a single individual or a distinctive group of people e.g. a remote tribe. Case studies provide a <b>rich</b> <b>set of data</b> - usually both <b>qualitative and quantitative</b> data.
Self Report (Questionnaire or Interview)	A research method where participants are asked to report on their own <b>attitudes</b> , <b>abilities or feelings</b> . Self-reports can either be a <b>questionnaire</b> (where questions and answers are written) or an <b>interview</b> (where questions and answers are spoken)

### **Observational Research**

Observation	<ul> <li>describe the main features of an observation (e.g. overt/covert, participant/non-participant, structured/unstructured, naturalistic/controlled)</li> </ul>
	<ul><li>evaluate the use of observations in psychological research</li><li>apply knowledge of observations to a novel research situation</li></ul>

As a method:

- A researcher will simply observe behaviour, and look for patterns.
- Like all non-experimental methods, in an observation we can establish **cause-and-effect** relationships.

As a research technique:

- This is when observations are used as part of another research method such as a lab study or a field study.
- Nearly all research in psychology involves some aspect of observation.

#### Types of observations

- 1. The settings: naturalistic vs controlled
- 2. The data: structured vs unstructured
- 3. The participants: overt vs covert
- 4. The observers: participants vs nonparticipants





Naturalistic observations	This refers to the observation of behaviour in its natural setting. The researcher makes <b>no attempt to</b> <b>influence the behaviour</b> of those being observed. It is often done where it would be unethical to carry out a lab experiment	<ul> <li>High levels of ecological validity as carried out in natural setting</li> <li>Participants are less likely to display demand characteristics are they are unaware they are being studied</li> <li>Little control over extraneous variables (EVs) which makes it hard to establish casualty</li> <li>Replication is often not possible and so the reliability of findings cannot be checked</li> </ul>
Controlled observations	This refers to an observation-taking place in a controlled setting, usually behind a one-way mirror so they cannot be seen	<ul> <li>There is little risk of extraneous variables affecting the behaviour as it is in a controlled environment</li> <li>The setting is artificial therefore may lack ecological validity</li> </ul>
Structured observation	<ul> <li>The observer creates a behaviour checklist in order to code the behaviour they are observing. Can use time or event sampling</li> <li>Event sampling: counting each time a particular behaviour is observed <ul> <li>Useful when the target</li> <li>behaviour or event happens infrequently and could be missed if time sampling was used</li> <li>However, if the event is too complex, the observer may overlook important details of using event sampling</li> </ul> </li> <li>Time sampling: counting each time a particular behaviour is observed <ul> <li>The observer has time to record what they have seen</li> <li>Standardized procedure</li> <li>Check reliability with other people</li> <li>Some behaviour may be missed outside the intervals - observation may not be representative</li> </ul> </li> </ul>	<ul> <li>The behavioural checklist (coding system) allows objective quantifiable data to be collected which can be statistically analysed</li> <li>Allows for more than one observer (due to checklists) which can increase the reliability (inter-observer reliability)</li> <li>The pre-existing behavioural categories can be restrictive and do not always explain why the behaviour is happening</li> </ul>
Unstructured observation	The observer notes down all the behaviours they can see in a qualitative form over a period of time. No behavioural checklist is used	<ul> <li>+ They can generate in-depth and rich qualitative data that can help explain why the behaviour has occurred</li> <li>+ Researchers are not limited by prior theoretical expectations</li> </ul>

		<ul> <li>The observer can get drawn to eye-catching behaviours that may not be representative of all behaviours occurring</li> <li>More subjective and less comparable across researchers</li> </ul>
Overt observation	Participants are aware that their behaviour is being studied, the observer is obvious	<ul> <li>+ It will better fulfil ethical guidelines compared to covert</li> <li>- Participants know they are being observed therefore may change their behaviour (Hawthorne effect)</li> </ul>
		Hawthorne effect: A type of reactivity in which individuals modify an aspect of their behaviour in response to their awareness of being observed
Covert observation	Participants are unaware that their behaviour is being studied - the observer is covered	<ul> <li>participants do not know they are being observed and therefore their behaviour is more likely to be natural = higher validity</li> <li>It can break many ethical guidelines as deception is used and it may cause some psychological harm</li> </ul>
Participant observation	The observer becomes involved in the participant group and may not be known to other participants	<ul> <li>Being part of the group can allow the researcher to get a deep understanding of the behaviours of the group = increasing validity</li> <li>The presence of the researcher might influence the behaviour of the group</li> <li>The researcher may lose objectivity as they are part of the group</li> </ul>
Non-participant observation	The observer is separate from the participant group that are being observed	<ul> <li>Researchers observations are likely to be more objective as they are not influenced by the group</li> <li>It is harder to produce qualitative data to understand the reasons for the behaviour</li> </ul>

Inter-rater reliability

- It is recommended that researchers do not conduct observational studies alone as single observers may miss important details or may only notice events that confirm their opinions or hypothesis.
  - This introduces bias into the research.
- To make observational data more objective and unbiased, there should be at least two observers. They should compare their data at the end.
  - The correlation should be close to 1.0 (0.8 minimum) to have good reliability and this is known as inter-rater/ observer reliability.



#### **Case Studies**



Case studies	•	describe the main features of a case study
	•	evaluate the use of case studies in psychological research
	•	apply knowledge of case studies to a novel research situation

A case study involves the detailed study of a single individual or a small group of people

- Conducting a case study usually (but not always) involves the production of **qualitative data**. Researchers will construct a **case history** of the individual concerned, perhaps using interviews, observations, questionnaires or a combination of all these.
- It is event possible that the person may be subject to experimental or psychological testing to assess what they are (or are not) capable of, and this may produce quantitative data.

Case studies are generally longitudinal studies, which means they follow the individual or group over an extended period of time.

Evaluation of longitudinal studies		
Strengths	Limitations	
Allows to look at changes over time	Participants may drop out, which can lead to a small sample size	

#### Case studies evaluation

Strengths	Weaknesses
<ul> <li>+ They offer high levels of validity as they go into depth and give a rich insight</li> <li>+ They allow researchers to study events or complex psychological areas they could not practically or ethically manipulate</li> <li>+ Learn about issues not yet understood</li> <li>+ Efficient as it only takes one case study to refute a theory</li> </ul>	<ul> <li>Researcher bias: researchers can become too involved and lose their objectivity - misinterpreting or influencing outcomes</li> <li>It can be difficult to establish cause and effect because they are many confounding variables</li> <li>Lack of control: extraneous variables can affect the outcome</li> <li>They lack scientific rigour and can be difficult to replicate</li> </ul>

#### **Self-Report Methods**

Self-reports	<ul> <li>describe the main features of a questionnaire, including open and closed questions</li> </ul>
	<ul> <li>describe the main features of an interview, including structured/ unstructured/semi-structured</li> </ul>
	<ul> <li>evaluate the use of self-reports in psychological research</li> </ul>
	apply knowledge of self-reports to a novel research situation

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Studies that used this method:

- Schacter and Singer
- Laney

- Silverman
- Baron-Cohen

Self-report techniques describe methods of gathering data where participants provide information about themselves, e.g. their **thoughts**, **feelings and opinions**. This can be done in written or oral form. The techniques generally used are:

- Questionnaires
- Interviews

It can be both a research method and a technique.

Strengths	Limitations
<ul> <li>It allows participants to describe their own experiences which provide rich in-depth (qualitative) data about complex human behaviour</li> <li>It can be an easy way to gather a large amount of data</li> <li>You can ask people hypothetically what they would do without having to set up an experiment and observe the behaviour <ul> <li>Easier to conduct than a laboratory experiment</li> <li>Less time consuming</li> <li>Limitation = gap between what people say they'll do and what they actually do</li> </ul> </li> <li>It can help explain the reasons behind the behaviour (answers the why) <ul> <li>Observations only give the what</li> </ul> </li> </ul>	<ul> <li>Participants may try to come across in the most socially acceptable way (social desirability bias) which can lead to giving untruthful responses and lowering the validity of the results</li> <li>It is only useful if the participant is willing to disclose the information</li> <li>Self-report relies on participants to have the introspective ability to understanding their own thoughts and feelings</li> <li>Acquiescence bias is often present - people tend to agree with statements</li> <li>Participants may misinterpret the questions (subjective)         <ul> <li>Solution: do a pilot = testing the questionnaire</li> </ul> </li> </ul>

**Questionnaires:** A written self-report technique where participants are given a pre-set number of questions to respond to. They can be administered in person, by post, online, over the telephone, or to a group of participants simultaneously.

- Questions should **progress logically from the least sensitive to the most sensitive**, from the factual and behavioural to the cognitive, and from the more general to the more specific. The researcher should ensure that the answer to a question is not influenced by previous questions.

#### Types of questionnaires:





#### Open questions: qualitative



- **Predominantly** will be collecting **quantitative** data but have a few open questions at the end to collect qualitative data and answer the 'whys'
  - Example: Do video games make people violent? Quantitative data: on a scale of 1-10 how likely are you to verbally attack someone with an opposing view // 1 - not at all, 10 - very likely

Questionnaires must include standardised instructions

- These are a set of written or recorded instructions that are given to the participant to ensure that all ppts receive them in the same way.
- This increases the **reliability and validity** of the research. It is used as a control to standardise the procedure.

#### Evaluating questionnaires

Strength	Weakness
<ul> <li>Anonymised</li> <li>Social desirability bias is reduced as no interviewer is present and questionnaires are often anonymous</li> <li>A large amount of data can be collated very quickly which can increase the representativeness and generalisability         <ul> <li>Data can be compared using mean and average</li> <li>Data can be analysed easier than interviews (if mostly quantitative)</li> </ul> </li> </ul>	<ul> <li>The options given may not reflect the participants' opinions and they may be forced into answering something which does not fit - lowering the validity of the findings         <ul> <li>Due to leading questions</li> <li>And participants may get fed up and not finish</li> </ul> </li> <li>The quantitative data produces less rich data than interviews         <ul> <li>Answers the what not why</li> </ul> </li> </ul>

#### Design a study

- Ask for consent
- Anonymous participants
- Mention right to withdraw
- Are you happy to take part, if so tick this box
- Is there anything else you would like to say to the researchers...

**Interviews**: Self-report techniques that involve an experimenter asking participants questions (generally on a one-to-one basis) and recording their responses.

Structured interview has predetermined questions. It is essentially a questionnaire that is deliver face-to-face (or over the phone).

#### Unstructured interview

has less structure. They may start with some predetermined questions and then new questions may develop during the interview depending on the answers given.

#### **Semi-structured interview**

is a mix of structured and unstructured and is often the most successful approach.

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#### Help with designing a study

- Semi-structured: most used and best for designing a study
- The interviewer should conduct the interview in a **quiet room**, away from other people, as this will increase the likelihood that the interviewee will open up.
- Most interviews involve an **interview schedule**, which is the list of questions that the interviewer intends to cover. This should be standardised for each participant to reduce the contaminating effect of **interviewer bias** human nature: tone of voice or body language.
- The interviewer may take notes throughout the interview, although this can interfere with their listening skills. The interview may be audio or video recorded and analysed later. Any audio recordings must be turned into written data which is called an interview transcript. This must protect anonymity.

#### Interviews or questionnaires?

- One of the main reasons for **conducting interviews** rather than using questionnaires is that the presence of an interviewer **may increase the amount of information** provided.
- This allows for a deeper understanding of an issue and provides the researcher with rich data and deeper insight.
- The data gathered from interviews in mostly qualitative data and will often explore the why or the reason for a behaviour.

#### Evaluating interviews

#### Structured Interviews

Strengths	Weaknesses
<ul> <li>Standardised question means it can be replicated</li> <li>Reduces differences between interviewers (consistency = higher reliability)</li> <li>Quick to conduct</li> </ul>	<ul> <li>Interviewers cannot deviate from the topic or elaborate on points</li> </ul>

#### **Unstructured Interviews**

Strength	Weaknesses
- More flexibility allows for the collection of rich data which offers deeper insight and for the interviewer to follow up, explore more or seek clarification	<ul> <li>Difficult to analyse as they produce lots of qualitative data. The researcher should demonstrate reflexivity.</li> <li>Reflexivity: generally refers to the examination of one's own beliefs, judgments and practices during the research process and how these may have influenced the research</li> <li>Bias may be present in the research process</li> <li>Interviewees may not be truthful due to social desirability bias which lowers the validity of the findings</li> </ul>

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#### **Correlational Studies**



Correlations	describe positive and negative correlations	
	<ul> <li>evaluate the use of correlations in psychological research, including causality</li> </ul>	
	apply knowledge of correlations to a novel research situation	

**Correlation:** A relationship or association between two variables. Correlation is not equal to causation as there may be other interfering variables.

- If the two variables increase together then this is a positive correlation.
- If one variable increases and the other decreases then this is a negative correlation.
- If there is no relationship between variables this is called a zero correlation.

#### Scatter graphs - used to plot correlations

- Scores for two variables are obtained which are used to plot one dot for that individual. This is a correlation coefficient.
- The scatter of dots indicates the degree of correlation between the co-variables.
- Pearsons arm test

Perfect positive High positive Low positive Low positive 1 0.8 0.3

Note the dispersion of data and the **correlation coefficients**. **1** = a perfect positive correlation



Amount of Time Spent Training



Here we see **zero** correlation. There is no relationship between the variables.



Note the dispersion of data (it goes the opposite way to positive correlation) and the negative correlation coefficients. -1 = a perfect negative correlation

Generally in psychology, a 0.8 correlation is needed for significant results

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- The correlation coefficient is 0 as they cancel each other out

#### Correlation vs experiments

- Experiments researcher controls or manipulates the IV to measure the effect on the DV (can establish cause and effect).
- Correlation **no manipulation** of one variable not possible to establish cause and effect between one co-variable and another. Especially as there may be intervening variables.

#### **Evaluating correlations**

Strengths	Limitations
<ul> <li>They can be used when it would be impractical or unethical to manipulate variables using another method</li> <li>It can make use of existing data (secondary), and so can be a quick and easy way to carry out research</li> <li>Often, no manipulation of behaviour is required. Therefore, it is often high in ecological validity because it is using real behaviour or experiences.</li> </ul>	<ul> <li>Cannot establish causation</li> <li>Third external variable</li> </ul>

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