7.8 Types of Experiment: Laboratory, Field, Natural and Quasi-Experiments

AQA 7182 · about 50 minutes · Write-in edition

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions.

1 Define a field experiment in psychology, giving an example of the setting and stating how control compares with a laboratory experiment.

(Total for Question 1 is 2 marks)

2 Define a quasi-experiment in psychology and state how it differs from a true experiment in terms of IV manipulation.

(Total for Question 2 is 2 marks)

3 Outline one advantage of laboratory experiments and one limitation of quasi-experiments with respect to generalisability and control. Give one sentence of explanation for each point.

(Total for Question 3 is 4 marks)

4 Vignette: A psychology team sets up hidden speakers in a busy shopping arcade to play varying levels of background music volume and measures shoppers speed of walking past a particular shop. Participants are shoppers unaware they are in a study. Identify which type of experiment this is and justify your decision in terms of setting and control over variables.

(Total for Question 4 is 3 marks)

5 Vignette: A researcher compares the exam performance of two schools after a change in national exam rules, using archived exam scores from before and after the policy change. The researcher did not manipulate the policy. Identify the type of experiment and explain why the researcher cannot randomly assign participants or manipulate the IV.

(Total for Question 5 is 3 marks)

6 Vignette: In a laboratory room, volunteers are randomly assigned to wear a heavy backpack or no backpack and then complete a timed memory task. Performance is measured in seconds taken to recall a list. Identify the experiment type and state two features of the setting that support this classification.

(Total for Question 6 is 3 marks)

7 Explain why natural and quasi-experiments generally provide weaker evidence for causality than laboratory experiments. Include one implication for the interpretation of results.

(Total for Question 7 is 4 marks)

8 Discuss the strengths and limitations of laboratory experiments and natural experiments for investigating bystander intervention in public spaces. Refer to issues of control, ecological validity, ethics and the strength of causal inference in your answer.

(Total for Question 8 is 16 marks)

9 Distinguish between laboratory and field experiments in terms of control over extraneous variables and ecological validity, using one brief example to illustrate each point.

(Total for Question 9 is 4 marks)

Mark scheme · 7.8 Types of Experiment: Laboratory, Field, Natural and Quasi-Experiments

Question 1

states that a field experiment takes place in a natural, real-world setting such as a street, school or workplace oe **B1**

states that control over variables is lower than in a laboratory experiment, because the setting is less controlled oe **B1**

Answer: A field experiment is conducted in a real-world setting, such as a street, school or workplace, where the researcher manipulates the IV but has less control over extraneous variables than in a laboratory experiment.

Question 2

states that a quasi-experiment compares existing groups or conditions where the IV is based on an existing characteristic or situation, not randomly assigned oe **B1**

states that unlike a true experiment the researcher does not directly manipulate the IV or randomly allocate participants oe **B1**

Answer: A quasi-experiment compares existing groups or conditions where the independent variable is not manipulated by the researcher and participants are not randomly allocated; the IV is based on a preexisting characteristic or situation.

Question 3

advantage: laboratory experiments have high control which improves internal validity and replicability oe **M1**

explanation: controlling extraneous variables and standardising procedures reduces alternative explanations and allows replication across studies oe **A1**

limitation: limited control because participants cannot be randomly allocated to the pre-existing groups, so participant differences may confound the comparison; or limited generalisability if the groups/sample or context are unrepresentative, oe **M1**

explains the chosen limitation: pre-existing participant differences offer alternative explanations, weakening causal inference; or explains why the particular sample/context limits application to other people or settings, oe **A1**

Answer: Laboratory experiments allow control of extraneous variables and standardised procedures, improving internal validity and replicability. In quasi-experiments, participants cannot be randomly allocated to pre-existing groups, so other group differences may explain results and weaken causal conclusions. Alternatively, explain limited generalisability where the sample or setting is unrepresentative.

Question 4

identifies the design as a field experiment cao **B1**

justifies by referring to a real-world natural setting (shopping arcade) where the researcher manipulates the IV (music volume) oe **M1**

adds that control is lower than in a lab because participants are unaware and there are many uncontrolled extraneous variables (crowd, distractions) oe **A1**

Answer: Field experiment, because it is conducted in a real-world setting (a shopping arcade) with the researcher manipulating the independent variable (music volume) but with lower control over extraneous factors than in a laboratory.

Question 5

identifies the design as a natural experiment cao **B1**

explains that the IV (the policy change) varied naturally and was not under the researcher's control oe **M1**

states that participants cannot be randomly assigned because the policy applies to existing schools and time periods, not to randomly allocated individuals oe **A1**

Answer: Natural experiment, because the independent variable is a real-world policy change that the researcher did not manipulate, and random assignment is impossible since the policy applies to existing schools and time periods rather than to randomly allocated participants.

Question 6

identifies the design as a laboratory experiment cao **B1**

states a feature: random allocation to conditions and researcher manipulation of the IV (backpack) oe **M1**

states a feature: controlled, artificial setting where extraneous variables can be minimised, such as a lab room with standardised instructions oe **A1**

Answer: Laboratory experiment. Features supporting this are random allocation to conditions with researcher manipulation of the IV (backpack), and a controlled, artificial laboratory setting with standardised procedures to minimise extraneous variables.

Question 7

states that in natural and quasi-experiments the IV is not manipulated by the researcher and random allocation is absent oe	**M1**
explains that without manipulation and random assignment there may be confounding variables and participant differences that could cause the observed effect oe	**A1**
states that this reduces internal validity and makes causal claims less secure oe	**M1**
gives an implication, e.g. results are correlational in effect and researchers should be cautious about claiming that the IV caused the DV, suggesting further controlled studies are needed oe	**A1**

Answer: Because the researcher does not manipulate the IV and participants are not randomly allocated in natural and quasi-experiments, confounding variables and preexisting differences may explain observed effects. This reduces internal validity and weakens causal inference, so findings should be interpreted with caution and often seen as correlational rather than definitive proof of causation.

Question 8

Level 4 Knowledge of laboratory and natural experiments is accurate and detailed. Discussion evaluates strengths and limitations for investigating bystander intervention, with sustained, balanced consideration of control, ecological validity, ethics and causal inference. Arguments are well developed and applied to the context of public-space bystander research. Specialist terms are used appropriately and the answer is coherent and well organised.	**13-16**
Level 3 Knowledge of the two experiment types is clear with some detail. Discussion evaluates strengths and limitations relevant to bystander intervention, but may be uneven in depth or balance. Application to the context is present and generally effective. The answer is organised and uses relevant terminology.	**9-12**
Level 2 Knowledge is limited or partial. Discussion is mostly descriptive with limited evaluation, and links to the bystander intervention context are brief or underdeveloped. Some relevant points are made but depth and organisation are lacking. Terminology is used inconsistently.	**5-8**
Level 1 Knowledge is very limited. Discussion is superficial or a list of unconnected points. Little or no application to the bystander intervention context. The answer lacks structure and relevant terminology.	**1-4**
Level 0 No creditable content.	**0**

Indicative content:

- AO1: Laboratory experiments would take place in an artificial setting where the researcher manipulates the IV, for example staging a simulated emergency in a controlled room and varying presence of bystanders.
- AO1: Natural experiments would compare situations where the IV varies naturally, for example comparing intervention rates before and after a real public safety campaign or using naturally occurring variations in crowd density at events, with no researcher manipulation.
- AO1: Control in lab experiments is high, allowing standardisation of scenario, precise timing, clear operationalisation of the IV and reduction of extraneous variables, which supports internal validity and replicability.
- AO3: High control in labs supports stronger causal inference, because random allocation and manipulation reduce alternative explanations, but the artificiality may change participants' behaviour compared with real public spaces.
- AO3: Ecological validity is higher for natural experiments because events occur in real public settings and behaviour is observed in situ, making findings more generalisable to real-world bystander behaviour.
- AO3: Natural experiments provide weaker causal evidence because the researcher does not manipulate the IV and cannot randomly allocate participants, so confounding variables, such as differences in crowd composition or context, may explain observed differences in intervention rates.
- AO3: Ethics differ: lab experiments can obtain informed consent and debrief participants, but staging emergencies raises ethical problems about deception and distress; careful safeguards are required and some deceptions may still be judged unethical.
- AO3: Natural experiments can avoid deception because they study real events, reducing some ethical concerns, but they raise issues of consent if individuals are observed without knowledge and practical difficulties in debriefing or anonymising data from public behaviour.
- AO3: Practical issues include feasibility and control of safety: lab studies allow controlled risk management, whereas natural studies may expose participants to real danger or rely on rare events, limiting research opportunities and replicability.
- AO3: Methodological triangulation: combining lab and natural data can strengthen conclusions, for example using lab findings to test causal mechanisms and natural studies to check ecological validity, with converging evidence improving confidence.
- AO3: Examples and application: reference to classic bystander research approach, noting how laboratory replications can reveal causal mechanisms like diffusion of responsibility but natural observations of street incidents provide evidence of how often and under what conditions intervention occurs in real life.
- AO3: Conclude with balanced judgement: for investigating mechanisms and establishing causality lab experiments are stronger, but for understanding actual public behaviour natural experiments are more ecologically valid and ethically feasible in some cases; a mixed approach is often recommended.

Question 9

states that laboratory experiments have high control over extraneous variables, allowing better internal validity oe **M1**

gives a brief example: a memory test in a lab with standardised lists and timing to control confounds oe **A1**

states that field experiments have lower control over extraneous variables but higher ecological validity because they occur in real-world settings oe **M1**

gives a brief example: varying shop music volume in a real store to measure shopper behaviour, which is more natural but has many uncontrolled influences oe **A1**

Answer: Laboratory experiments offer high control over extraneous variables and so stronger internal validity, for example a lab memory test with identical lists and timing. Field experiments have lower control but higher ecological validity because they occur in natural settings, for example manipulating shop music in a real store to measure shopper behaviour, but many other factors may influence results.