Critiquing study design

Learn and practise | Free preview

A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the explanation and worked example. Show your working; use a calculator only where asked.

What you will practise

• Evaluate reports by examining sampling, implementation, graphs and the claims supported by evidence.

• Explain a method and check the reasonableness of a result.

Useful starting skills: Use the prerequisite operations and representations shown in the worked example.

A study report should identify its target population, sampling frame, recruitment method, sample size, missing responses and measurement procedure. A large sample can still be systematically biased if some groups are excluded or participation depends on the topic.

Compare each headline with the actual design and numerical results. Inspect graph scales, denominators and time periods. Random sampling helps population representation, while random allocation to treatments addresses a different question about comparable groups. Observational associations require care about confounding and causal claims.

Worked example

A website reports that 90% of 200 volunteers support a policy and claims that 90% of all residents support it. Evaluate the claim.

The volunteers may differ from residents who did not visit or respond.

The sample proportion describes these respondents; it is not automatically a representative population estimate.

A clearer report gives the recruitment method and population limits.

Answer: The population claim is not justified by the volunteer sample alone.

Try it yourself

Name: _____ Date: _____

1. A school surveys only students present at a lunchtime sports club to estimate all students' interest in sport. Identify a likely bias.

2. A bar graph compares 98% and 99% but starts its vertical scale at 97.5%. What should a reader check?

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. Selection or coverage bias towards sports participants

Students who do not attend the club are excluded and may have different interests.

2. Whether the truncated scale exaggerates the visible difference

The numerical difference is one percentage point; scale and labels must be considered together.

Curriculum reference: VC2M10AP02

Independent original resource. Not published or endorsed by VCAA. This focused set supports the listed skills; it is not a complete course or an official assessment.

This free preview may be shared intact with attribution. Not for sale.