

Sampling Errors in Reasoning

Definition: A sampling error refers to the data from which conclusions have been drawn. A sampling error may relate to an insufficient sample size or an unreliable sample group.

Example: A survey was conducted to determine whether the school should continue funding the cheer program. Of the 30 members of the cheer team, all 30 supported the funding. Another 30 students were polled, and half supported the funding. So, 75% of the school supports the funding.

Explanation: The entire cheer team should not be included in the sample, because these students would vote in their self-interest. Therefore, the sample size is *skewed* (biased) in their favor.

Practice

A survey conducted by the Iowa Dentist Association produced interesting results. Almost 20 dentists were surveyed. Of these dentists, three out of every four dentists recommend flossing three times per day.

Explain the Sampling Error: _____

Application

Write a topic sentence on a subject of your choice with supporting evidence and analysis which includes a sampling error in reasoning. Explain the sampling error.

Topic Sentence: _____

Evidence: _____

Analysis with Sampling Error: _____

Explain the Sampling Error: _____

Errors in Reasoning Practice Answers

Synonym Error: The writer substitutes *dictatorship* for *undemocratic*. However, not all undemocratic forms of government are the same as dictatorships.

Non Sequitur Error: The conclusion that “the sky must be made of ocean water” does not follow logically from the facts presented.

Red Herring Error: The statement “the world has always had its share of poor people” attempts to distract the reader from the issue of poverty as the most important world problem.

Unsupported Generalization Error: The fact that specific children who have blonde hair are good athletes does not justify the broad generalization that “All blonde children excel at sports.”

Poisoning the Well Error: The president’s argument that reducing taxes will encourage taxpayers to spend more money is weakened by the comment that all leading economists have criticized the plan.

Cause and Effect Errors: Sneezing after a commercial is a matter of coincidence. Commercials do not cause sneezing. There is no logical cause-effect connection.

Begging the Question Errors: The statement assumes an advisory document requires homeowners to agree to the advice.

Either-Or Errors: The statement ignores other options that true Americans might choose.

Comparison Errors: The price of tea and gas are unrelated issues and cannot be compared.

Questionable Authority Errors: In the first example, the expert is non-specific. In the second example, a mathematician is not an expert in matters of love.

Contradiction Errors: Skateboard injuries contradict the claim that the sport is completely safe.

Inconsistency Errors: The arguments that children should be required to wear helmets while riding bicycles, but not while in-line skating, are not in agreement.

Omission Errors: The fact that the Folsom High School Band is the only band in the city has been omitted.

Oversimplification Errors: This oversimplification ignores the complicated components such as baseball strategy, substitutions, and statistical probability.

Sampling Errors: Only about 20 dentists were surveyed as part of the sample group—hardly enough people upon whom to base a conclusion that “three out of every four dentists recommend flossing three times per day.”