Explain these 7 features of research

These seven features describe essential qualities of **good research**, helping to ensure that findings are trustworthy, meaningful, and ethically sound.

Systematic Process

Research is **structured** and follows step-by-step methods rather than random actions. This means researchers design studies carefully, use controls, and standardize procedures, which strengthens reliability. For example, testing two fertilizers on set groups of plants is systematic, while trying fertilizers randomly is not.

Logical

Good research uses **facts, data, and reasoning**, not guesses or personal feelings. Logical research relies on evidence and sound arguments. For instance, citing a meta-analysis to discuss depression is logical, while using personal experience is illogical and unreliable.

Empirical

Research should be **empirical**, relying on real-world observations and experiments—not just speculation or theories. Findings should come from credible data, such as clinical trials or controlled studies, not mere predictions. For example, showing error reduction in surgeries with AI is empirical, while speculating about future AI roles is not.

Replicable

Research must be **replicable** so that other scientists can repeat the study and obtain similar results. Replicability helps verify findings and builds confidence in results. Studies must include full methods for others to follow, like describing a double-blind trial design. Vague claims with no method can't be replicated.

Objective (Unbiased)

Studies must be **objective**, using neutral analysis and avoiding personal opinions or bias. Researchers should use independent verification and transparent reporting—for example, reporting third-party test results instead of claiming a product is simply “the best”.

Generalizable

Findings should be **generalizable**—applying to broader populations beyond just the sample studied. Research is stronger and more useful when results can be extrapolated; large studies with diverse participants help confirm generalizability, while anecdotal evidence from one person does not.

Ethical

Ethical research **protects participants' rights**, including consent, privacy, and safety. Ethical standards require informing participants and following approval processes (like FDA review for drug trials). Unethical research disregards these protections, such as testing drugs without participant knowledge.

Each feature is foundational for rigorous, trustworthy, and responsible research.

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