

How Do We Know What We Know?

Tradition	Widely held or culturally shared beliefs	Potential Issues: may lead us to accept the status quo and not explore new ideas or question the beliefs
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Authority	Information is believed because of the source (e.g., parents, teachers, media)	Potential Issues: may be misleading or wrong
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Personal Experience	Direct experience/observation	Potential Issues: can be limited as it is based on our own experiences; information might not be generalizable to others
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Faith	A type of knowledge that is based on belief with little or no evidence to support it	Potential Issues: can be misleading
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Characteristics of Good Research

- Based on the work of others
- Can be replicated
- Generalizable to other settings, persons, times
- Based on some logical rationale and is tied to theory
- Realistic
- Unbiased or objective
- Ethical
- Transparent

Steps of the Scientific Method (cont)

- 5.) Analyze Data
- 6.) Interpret Data
- 7.) Inform Others

Theory can assist in developing research questions and hypotheses, and interpreting results.

Principles of the Scientific Method

- Evidence-based approach
- Following an explicit set of rules and engage in systematic observations (as opposed to speculation, intuition, opinions, feelings, etc.)
- Circulatory
- Replication
- Publication - openness
- Objectivity

Purposes of Research

Exploratory	learn about something entirely new and unknown	what?	general ideas and research questions
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Descriptive	provide details on something known	who? when? how?	factual details and descriptions
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Explanatory	build a new or test an existing explanation	why?	test a theory; compare explanations
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Evaluation	determine the effectiveness of a program or policy	does it work?	practical recommendations
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Errors in Observation

Inaccurate Observations	sometimes we are just incorrect and don't see everything that is happening
Selective Observation	if we believe something, we tend to pay more attention to things that mat our beliefs

Types of Research Methods

Quantitative Methods	collects numerical data and analyzes it using statistical methods (e.g., surveys, experiments, correlational studies)
Qualitative Methods	collects non-numerical data (e.g., interviews, focus groups, field research)
Mixed Methods	combines qualitative and quantitative to get a complete understanding of what is being studied

Errors in Reasoning

Steps of the Scientific Method

- 1.) Select Topic
- 2.) Focus Question
- 3.) Design Study
- 4.) Collect Data

Overgeneralization making broad generalizations with little evidence

Illogical Reasoning basing our conclusions on invalid assumptions

Resistance to Change reluctance to change our opinions/beliefs because of things like ego-based commitments or an excessive devotion to tradition



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