

### How Do We Know What We Know?

|           |                                          |                                                                                                                 |
|-----------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Tradition | Widely held or culturally shared beliefs | <b>Potential Issues:</b> may lead us to accept the status quo and not explore new ideas or question the beliefs |
|-----------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------|

|           |                                                                                |                                                     |
|-----------|--------------------------------------------------------------------------------|-----------------------------------------------------|
| Authority | Information is believed because of the source (e.g., parents, teachers, media) | <b>Potential Issues:</b> may be misleading or wrong |
|-----------|--------------------------------------------------------------------------------|-----------------------------------------------------|

|                     |                               |                                                                                                                                 |
|---------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Personal Experience | Direct experience/observation | <b>Potential Issues:</b> can be limited as it is based on our own experiences; information might not be generalizable to others |
|---------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------|

|       |                                                                                      |                                            |
|-------|--------------------------------------------------------------------------------------|--------------------------------------------|
| Faith | A type of knowledge that is based on belief with little or no evidence to support it | <b>Potential Issues:</b> can be misleading |
|-------|--------------------------------------------------------------------------------------|--------------------------------------------|

### 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

|                    |                                                |       |                                      |
|--------------------|------------------------------------------------|-------|--------------------------------------|
| <b>Exploratory</b> | learn about something entirely new and unknown | what? | general ideas and research questions |
|--------------------|------------------------------------------------|-------|--------------------------------------|

|                    |                                    |                 |                                  |
|--------------------|------------------------------------|-----------------|----------------------------------|
| <b>Descriptive</b> | provide details on something known | who? when? how? | factual details and descriptions |
|--------------------|------------------------------------|-----------------|----------------------------------|

|                    |                                             |      |                                     |
|--------------------|---------------------------------------------|------|-------------------------------------|
| <b>Explanatory</b> | build a new or test an existing explanation | why? | test a theory; compare explanations |
|--------------------|---------------------------------------------|------|-------------------------------------|

|                   |                                                    |               |                           |
|-------------------|----------------------------------------------------|---------------|---------------------------|
| <b>Evaluation</b> | determine the effectiveness of a program or policy | does it work? | practical recommendations |
|-------------------|----------------------------------------------------|---------------|---------------------------|

### 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 | reluctancy to change our opinions/beliefs because of things like ego-based commitments or an excessive devotion to tradition |



By **MSingleton**

[cheatography.com/msingleton/](https://cheatography.com/msingleton/)

Not published yet.

Last updated 10th October, 2023.

Page 1 of 2.

Sponsored by **Readable.com**

Measure your website readability!

<https://readable.com>