

How Do We Know What We Know?

- Personal Experience
- Learning from
- Listening to an
- _____ (special case of authority)
authority of the past
- “_____ Sense”

4 Errors of Personal Experience

- _____
(If the 5 people I know with red hair have bad tempers,
then all people with red hair have bad tempers)
- _____ Observation
(Taking special notice of someone or some event)
- _____ Observation
(You may _____)
- _____ Effect
(Overgeneralize when the Source is _____)

Tradition and “Common-Sense”

Birds of a feather flock together

Opposites attract

You can't teach an old dog new tricks

It's never too late to learn

Two heads are better than one

If you want something done right, do it yourself

Early Knowledge

- _____
- _____
- _____
- Spirits/Demons

What is “Research”?

- Prior to this class, “Research” may have meant

_____.

- In this class, we will call that a “_____.”

- Prof. Ackerman’s Definition of “Research” –

What is “Research”?

We Conduct “Research” Everyday

- What Car Should I buy?
- Which Tux or Wedding Dress Will I Look Best In?
- Is An Employee Stealing From Me?
- Ever Play a Trick on Someone to Find out Something about Them?

Research and Numbers

Sometimes it is Best to Use or Examine
_____ for Research
(_____ Research)

- What Car Should I buy?
 - Gas Mileage
 - Acceleration
 - Repair History

Research and Numbers

For Other Types of Research, Numbers
Will Not Work
(_____ Research)

- What Car Should I buy?
 - Which Color Do I Like Best

Types of Research

- _____
- _____ Observation
- _____ Observation (Going Undercover)
- _____ and _____ Experiments
- _____ Analysis / Using _____ Data

What Does Good Research Require?

- _____ Thinking
- Following _____
- Using _____ (_____) Methods

What is Science?

A Way to Produce _____

and

The _____ Produced from that _____

Scientists Believe

- Most of our beliefs should rest on _____ possible – not _____, _____, or “common-sense” alone
- There are only a few types of beliefs that are not open to _____
- Some types of _____ are better than others
- There are _____ one should follow for producing good _____

What is Science?

Science is Often:

- _____
- Uncertain
- Initially _____
- Designed to _____ Rather than _____ Conclusively
(There are often alternative interpretations)

What is Science?

_____ Sciences (sometimes called “hard science”)

Biology
Chemistry
Physics

_____ Sciences (sometimes called “soft science”)

Anthropology
Political Science
Sociology

Advantages of Science

Science Attempts to Safeguard from _____ by:

- Using Accurate _____
- _____ - Retesting
- Having Colleagues _____
- Always Acknowledging that Other _____ May Exist
- Following Proven _____

What are Data?*

Information Gathered According to _____ that
Allow Us to _____ and Test or Change
Our _____

* The word "Data" is plural (there are more than one data).

“Theory” has Two Meanings

1) An unproven “_____” or “_____” about how something works

2) A well substantiated _____ of some aspect of the world that can incorporate:

- Facts
- Laws
- _____
- _____

What is Theory

Theory is Simply a _____

- A very simple theory may consist of a single _____ that prior _____ has supported

- Theories are usually “_____”

For example,

If the humidity increases, it is more likely to rain

Theory

(More formal definition)

Theories are _____ statements intended to explain some aspect of social life

Everyday “Theories”

- If I study for tests, I will get higher grades
- If I dress well during an interview, I will be more likely to get the job
- People seek pleasure and avoid pain

If we punish lawbreakers they will be less likely to break the law in the future

People will be more likely to repeat behavior for which they are rewarded

Everyday “Theories”

- 8 cylinder cars have better acceleration than 4 cylinder cars but also have worse gas mileage

What is Theory

Theory Helps Us To:

- _____ Knowledge
- Make _____ about the _____
- Visualize A Complex World
- Explain Why _____ and How to _____

Theory and Research

We Use Research to _____. When Research Proves that Our Theories _____, We _____.

Hypothesis

- A testable statement about the _____ between two _____ that we intend to test using the _____

For example,

If the humidity increases, it is more likely to rain

When education increases, support for affirmative action increases

Concept

- _____
- An idea expressed as a _____

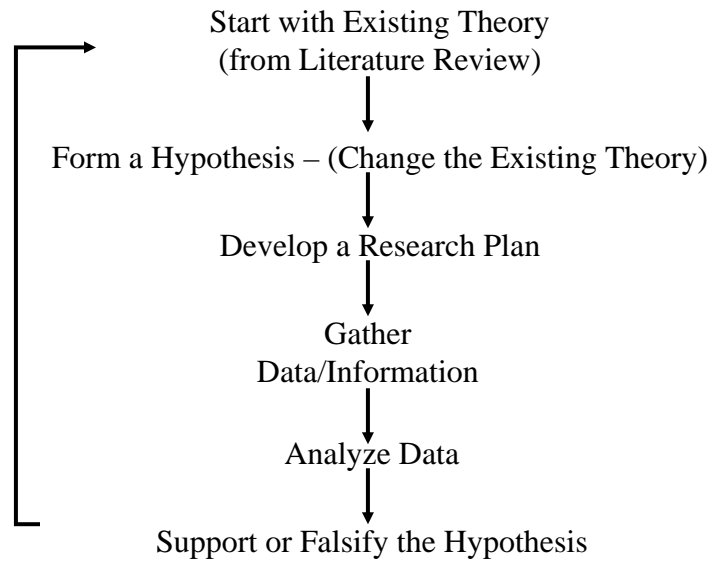
For example:

Height
Weight
Gender
Support for affirmative action

Steps in Scientific Research

- Select _____
- Focus on Specific _____
- Design _____
- Collect _____
- _____ Data
- _____ Data
- Inform Others
Get Feedback – Address Questions and Errors
Publish Results in _____

Elaborating / Modifying Theory



Theory and Research

What does Theory do for Research?

- Tells a _____
- Provides _____
- Makes _____ That are Tested in Research
- Points to _____
- Helps _____ be _____ (Concise)

Theory and Research

What does Research do for Theory?

- _____ Theory
- Points to Ways to _____ the Theory
- Forces _____ of Theory

What isn't Scientific Theory?

_____ - Something that looks like a _____ theory, but lacks _____.

- Strong, unchanging, and unquestioned _____.
- Unanswered _____ (what is right/wrong, moral/immoral).
- Bad _____ that prevents testing.
- “What is”, and “what should be” are blurred.
- A researcher can never _____.

(_____) _____ Statements/Theories

A (_____) _____ statement or theory is one
that _____

Some say that _____ statements or theories are those which
potentially could be

The best scientific statements/theories are those which have been

_____ statement/theory with

(_____) _____ statement/theory (but _____):

Ideological Statements/Theories

An ideological statement or theory is one that cannot be

In other words, it is

Usually, ideological statements are about what is _____ or how

Ideological statements can be both

The term “*ideological*” is not about the _____ of the statement,
but its ability to be

Ideological Statements/Theories

An ideological statement or theory often can be

- Ideology: Murder is wrong
- Scientific Statement: The majority of US residents

Ideology _____ with _____

A (potentially) scientific statement/theory with:

- No
- Given when strong
- Supportive evidence provided,

Science _____ as Ideology

Science is more likely to be accused of being _____ when:

- The supportive evidence is

Example:

- The statement/theory does not coincide with

Detached Versus Reform Oriented Research

Detached – Advances General Knowledge
- “Hands-Off” Approach Regarding Solution

Reform (Action) – Answers Specific Question
- and Proposes Solution