

# Homework

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**Science-** Organized body of knowledge in any area of inquiry that is acquired using the scientific method.

**Social Science-** science of people or the collection of people such as groups, firms, societies, or economies and their individual or collective behaviors.

**Scientific Knowledge** - Generalized body of laws and theories to explain a phenomenon or behavior of interest that are acquired using the scientific method

## **The Research Process:**

- 1.Observation
- 2.Rationalization
- 3.Validation

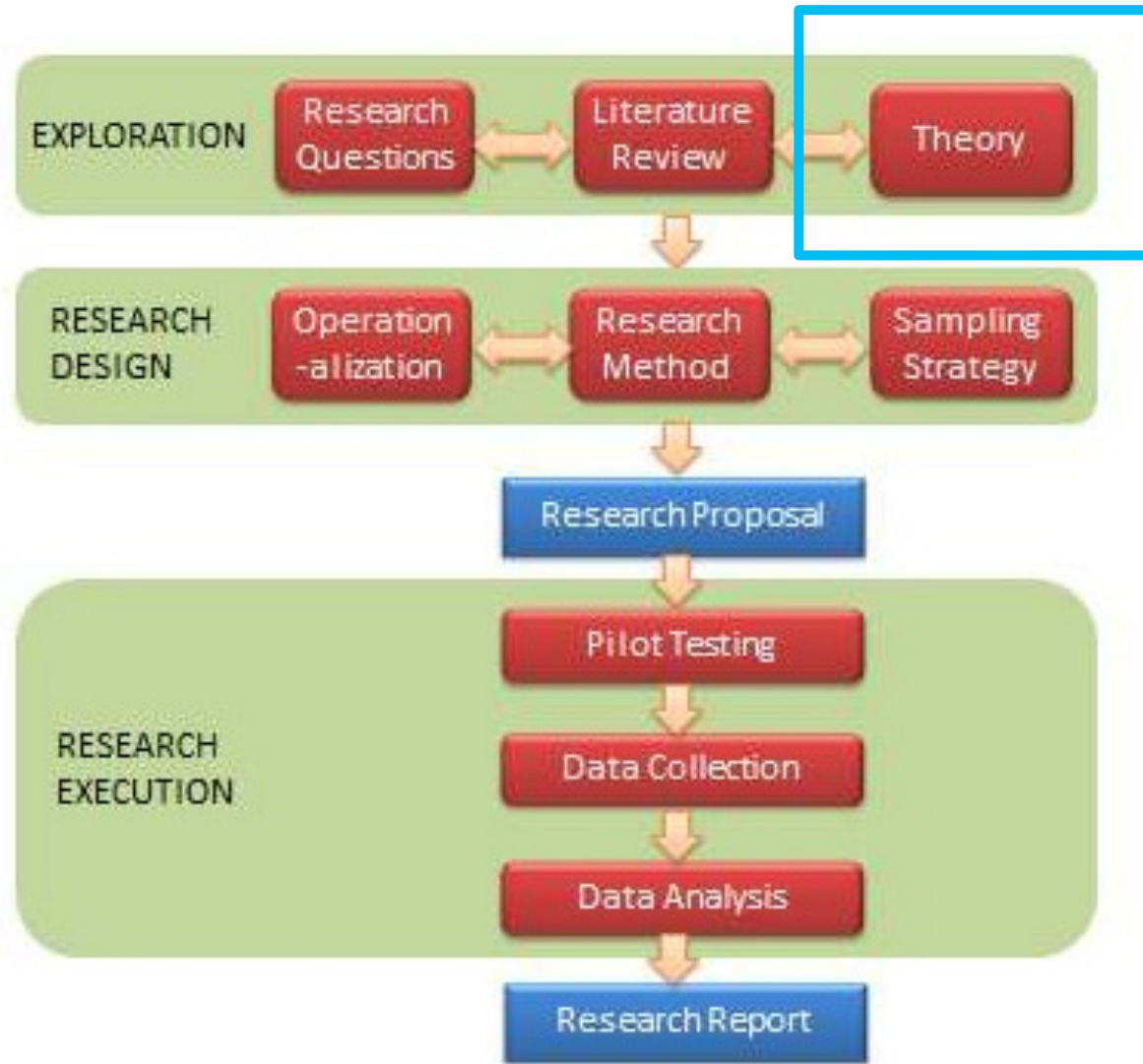
# Knowledge and Research

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RESEARCH METHODS

SPRING 2015

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## TODAY

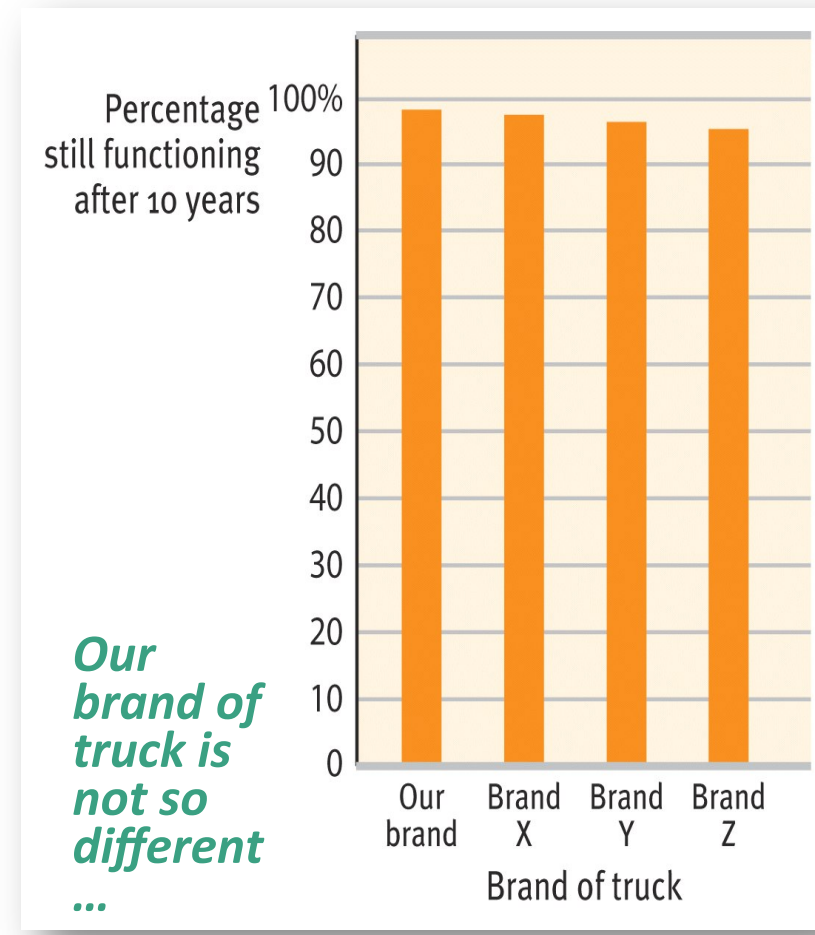
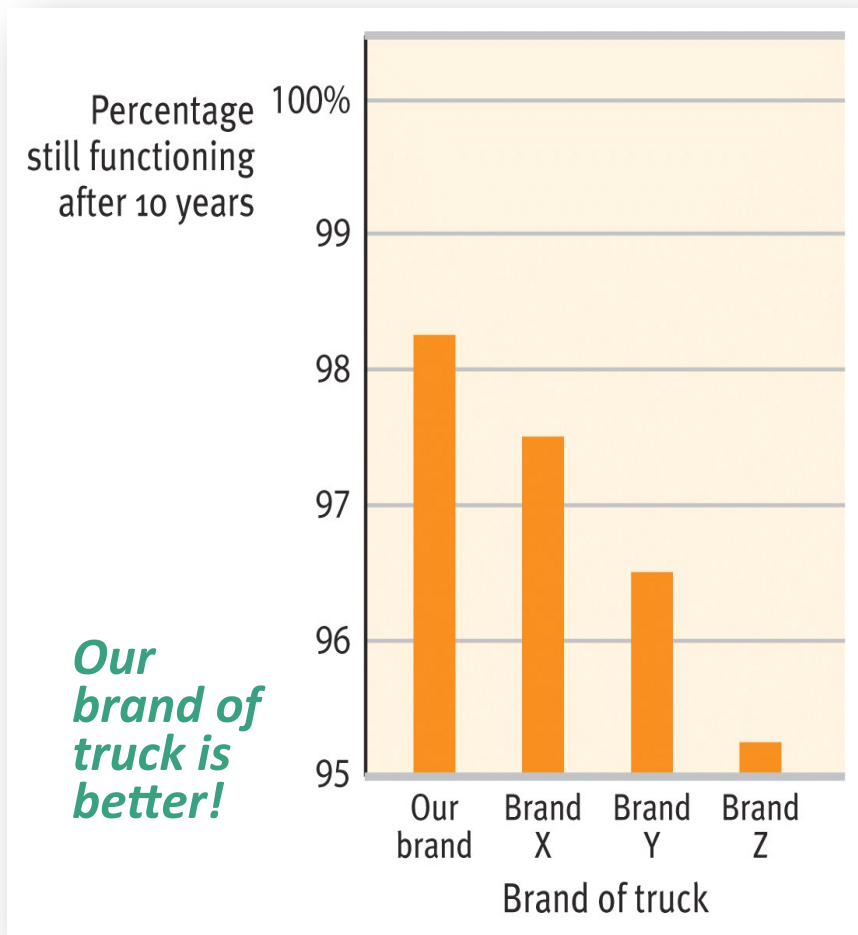
- Knowledge
- Scientific Inquiry
- Doing Social Science
- Goals of Research
- Types of research
- Ways of Knowing

# Living in the Information Age

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- iPhones, Tablets, Computers
- Internet & WiFi
- 24/7 Access
- Google + Social Media
- Customization of info
- How do we know which information is
  - Good?
  - Trustworthy?
  - Accurate?
  - Worthwhile?

***A bar graph is one simple display method but even this tool can be manipulated.***



# IF BUSH TAX CUTS EXPIRE

## TOP TAX RATE



8:01 p ET

**FOX**  
BUSINESS

TOP STORIES

TECHNOLOGY

CONSUMER

WITH THE JUSTICE DEPARTMENT AND ACQUIRES FULL T

DOW 13008.68 ▼ 64.33

S&P 1379.32 ▼ 5.98

NASDAQ 2939.52 ▼ 6.32

# Traditional Knowledge

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- **What do all these statements have in common?**
- The Earth is flat
- The Sun goes around the Earth
- Women and racial minorities do not have the mental capacity to vote
- Marriage should be between a man and woman
- Homosexuals should be prosecuted and not serve in the military
- Cigarettes are good for you
- **At one point in time, people believed that these ideas were true.**

# Traditional Knowledge

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- **Traditional Knowledge:** Long-standing ideas or enduring assertions about the world are assumed to be true
  - **Criticism:** Just because something has been assumed to be true for a long time does not mean that it is actually true
  - Just believing what you are told can be risky
  - Pros and cons of traditional Knowledge?
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- Pros: Upholds cultural norms, establishes traditions
  - Cons: May promote oppressive social norms, discrimination



# Authoritative Knowledge

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- **What do all these statements have in common?**
- Some scientists claim that climate change is a hoax.
- The FDA holds that GMOs are safe to eat.
- Politicians say that cutting taxes for the rich will increase equality.
- New study finds that exercise does not drastically increase health.
- Doctors find that the Paleo diet is the most healthy diet.
- Clinical trials prove that cell phone radiation is harmless.
- **Because these claims are made by authorities many people believe the claims are true and trustworthy.**

# Authoritative Knowledge

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- **Authoritative knowledge:** defer to authorities and experts to give us accurate information
  - Accepts claims truthful based on their credentials and knowledge of the world
- Are we “authority addicts”?
  - School, teachers, textbooks, news programs, studies
- Milgram study & obedience
- Spaces and times to “question authority” ?
- Credentials do not always give experts access to or ability to provide accurate, true information
  - Experts work with facts *as they see them*
  - Experts can intentionally mislead us
- We must make educated decisions about what information to trust

# Common Sense & Intuition

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- **Common sense** uses our personal experience as a source of practical knowledge
  - Not generalizable
- **Intuition** sometimes called “direct access” knowledge: knowing operates on gut feelings and unconscious processes
  - Operates outside of conscious reasoning, hard to utilize to figure out specific problems
- **So how are we supposed to know anything?**
- **How can we be more critical consumers of information?**

# A more trustworthy path

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- The highest quality information often comes from **scientific ways of knowing**
  - Science and research methods allow us to assess the multitude of information sources we encounter
- Knowledge of scientific investigation and methods will prompts us to question *who* is providing the information, *where* and *how* did they get it, *what* are their sources and findings, and *why* are they investigating this issue
- A scientific inquiry relies on 3 elements
  - **Empirical Evidence**
  - **Methodical rules (the Scientific Method)**
  - **Replication**

# Empirical Evidence

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- In a scientific investigation, assertions must be backed up by **evidence**
- Empirical evidence: concrete, objective, corroboration (aka proof, verification, support, testimony, verification)
- Empirical evidence is sensory information – it can be observed
- When doing a scientific investigation this evidence must be collected = **DATA**

# Methodical Rules

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- Science uses **standardized procedures** to guide us when we search for accurate information
- Rules help us develop and assess ways to accurately document and measure social life
  - Measurement validity & measurement error
  - Operational definitions (precision)
- Rules tells us how and when we can draw causal connections between events and behaviors
  - Internal Validity
- Rules to help us figure out who to include in our study
  - Sampling
- Rules to help us figure out how to relate our research findings to the larger world
  - External Validity

# Replication

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- The most accurate information has been substantiated multiple times, meaning multiple studies have been done and each study returned the same results
- Findings that are replicated over and over are considered the most accurate
- Replication helps prevent jumping to conclusions or drawing false conclusions from limited investigations
- **Since social science is interested in finding regularities and patterns in the social world, replicating findings gives us a good sense of whether that information is a pattern or just a fluke**

# Doing Social Science

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- **Scientific Knowledge:** Laws and theories to explain a phenomenon or behavior acquired through scientific, empirical inquiry
- **Social Science:** science and study of people or groups and their individual or collective behaviors
- **Scientific inquiry** involves 3 aspects
  1. Theory (logic)
  2. Data collection (observation)
  3. Data Analysis (patterns and comparisons)



# Studying Patterns

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- Social scientists study social patterns, not individual ones
- Patterns reflect the *aggregate* or collective actions and situations of many individuals
- Theories are created about the nature of group life rather than individual life
- Why aggregated patterns of behavior are so regular?
  - Explains the systems of behavior or the systems in which people operate
  - Elements in these systems are not individual people but ***variables***

# Theory

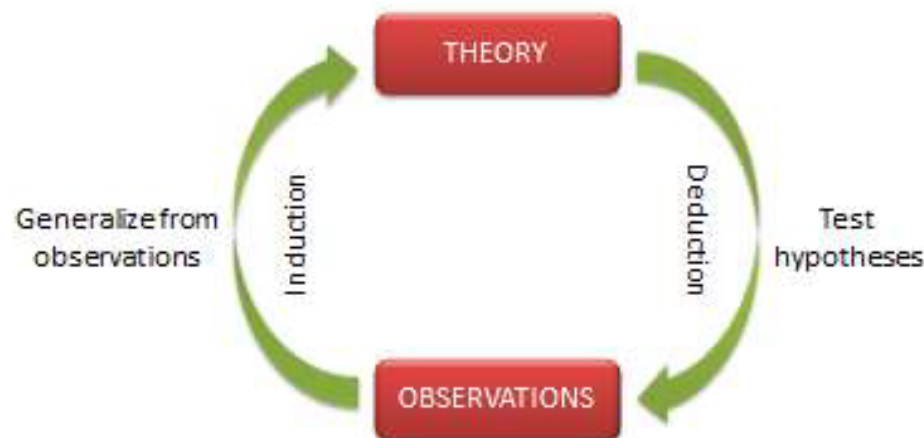
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- **Theory:** a systematic explanation for the observations that relate to a particular aspect of life
  - Best theories are scientific theories that have empirical evidence
  - Cannot really settle debates about value “what is good/bad/useful/etc.” (though it is used to)
- **Social science theories aim to describe social regularities and patterns in social life**
  - Norms regulate social behavior
  - Social regularities represent probabilistic patterns
  - A pattern that doesn't have to exist 100% of the time

# Forms of Scientific Inquiry

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- **Inductive research**– create theories based on available data
  - Moves from a set of specific observations to discover a pattern between events
  - AKA *theory-building research* – goal is to discover if a pattern exists
- **Deductive research** – test theories by collecting new data
  - Moves from an idea/knowledge of a pattern to observations that would test whether the pattern occurs
  - AKA *theory-testing research* – test theory to see if pattern exists, then refine and improve theory



# Goals of Research

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- Describe
  - How many formerly incarcerated individuals have trouble finding a job?
- Explain
  - Why do formerly incarcerated individuals have trouble finding a job?
- Explore
  - How hard is it for an individual who has been incarcerated to get a job once released?
- Evaluate
  - How has Program X helped formerly incarcerated individuals find and keep a job?

# Descriptive Research

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- Pays close attention to measurement and sampling to collect basic facts and numbers
- Get a detailed picture of people/group, setting/place
- Usually relies on survey methods
- Results in **quantitative data** - Numbers, numerical categories
- Statistics are used to analyze and describe this data
  - Helps to summarize and organize large amounts of numerical data



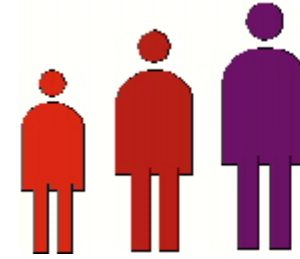
# Exploratory Research

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- Conducted to gain in-depth understanding of a new or little researched phenomenon
  - Used to gain insight and “get to know” people/group, setting/place, social occurrence
- Usually small sample sizes in order to get up-close, in-depth, and personal information
- Researcher often engage in interviews or participatory methods
- Often results in **qualitative data** – words, pictures, stories, etc.
- Attempts to get an initial picture of what is going on from the perspective of those individuals who are involved

# Explanatory Research



**In a longitudinal design,  
different individuals are  
studied at different ages.**

- Why do formerly incarcerated individuals have trouble finding a job?
- Gets more details than basic descriptive research and is looking for causal connections
  - Gets into the *why* question that is overlooked by descriptive research
  - Identifying causal connections (cause and effect) of social phenomena involves lots of challenges
- Research can be done with surveys but surveys would be much more in-depth
- Other methods include longitudinal studies, tracking individuals over time
- Results in lots of data that requires high levels of statistical analysis to identify causal connections



# Evaluation Research

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- Focuses on programs - used to assess program effectiveness
- For example: does program X do what it aims to do?
- Looks at outcomes produced by a program, initiative, or policy
- Helps to hold programs and social institutions accountable



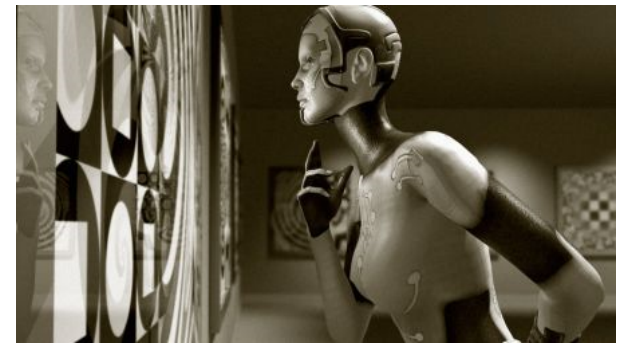


# Different ways of Knowing

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- **Ontology:** how do we see the world?
  - What exists to be studied?
- **Epistemology:** how can we study the world?
  - What is knowledge? How can it be acquired?
- **Paradigms:** mental models or frameworks that we use to organize our reasoning and observations (belief systems)
  - Social realities can be viewed different ways by different people
  - Shapes how people approach social issues
  - Positivism and post-modernism: observation+measurement vs. observation+inferences
- Different types of Knowledge brought to you by [“Richest Guys on Earth”](#)

# Objectivity, Bias, & Reflexivity



- **Objectivity** – the idea that researchers can or should remain distanced from what they study so they do not sway findings with their own personal beliefs, values, and personalities
  - Can we be truly “objective”?
  - Can we look at the world without our own beliefs, values, and personal histories getting in the way?
- 
- **Bias** – a system error in data collection or analysis stemming from inadequate technical procedures (including our own values/beliefs/ judgments)
- **Reflexivity** – the practice of being self aware of our how our own beliefs, values, personal histories, judgments, and biases might influence our research.
  - Is this what I am finding or do I want to see this pattern? Is there strong evidence in my data of this pattern?
  - Knowledge of our own subjectivity

# Your Worldview

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What is your ontology and epistemology?\*

**Ontology:** How do you see the world? Is there Social order or radical change? Is reality something you experience (separate from you) or something you help to create?

**Epistemology:** Can we be objective in our study of the world? Or does our subjectivity persist and interfere?

**Theory:** What is your theory of change? How does change occur in the world? Is it controlled or uncontrolled?

\*Some info from

[Burrell, G., & Morgan, G. Sociological Paradigms and Organizational Analysis, Heinemann, 1979, 1-37](#)

# Using Research Methods IRL

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- The ability to evaluate research and information is a skill
- Knowledge of research methods and procedures can help us be more critical when confronted with information and can also help us recognize sources of traditional or authoritative knowledge
- When and where are some instances that knowledge of research methods could be useful?
- VanderStoep & Shaughnessy: Taking a Course in Research Methods Improves Reasoning about Real-Life Events