What is Empirical Reasoning?

- Empirical = “based on observation”
- Why empirical reasoning is necessary?
  - Sometimes, settling disputes with other approaches is impossible.

Empirical Reasoning in Psychological Science

- William Wundt
  - Founder of psychology
  - *Principles of Physiological Psychology*
  - Laboratory at the University of Leipzig
  - First scientific journal in psychology
  - Trained many important psychologists

Empirical Reasoning in Psychological Science

- Galton and the “power of prayer”
- In England health and longevity of the royal family were prayed for weekly.
- Do individuals of royal family live longer than ordinary individuals?

The Scientific Approach

- What makes something a science?
  - Although the content is different, biology, chemistry, physics, and psychology are sciences because they all use a **scientific approach (empirical reasoning)**.

1872, Statistical inquiries into the efficacy of prayer

<table>
<thead>
<tr>
<th>Type of Person</th>
<th>1872 Inquiry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royal Family</td>
<td>20</td>
</tr>
<tr>
<td>Clergy</td>
<td>60</td>
</tr>
<tr>
<td>Doctors/Lawyers</td>
<td>50</td>
</tr>
<tr>
<td>Military</td>
<td>20</td>
</tr>
</tbody>
</table>
Empirical Reasoning in Psychological Science

- Applications of empirical reasoning to psychology has advanced
- "Each method has its limitations"

Ex: Asch (1952): Conforming to a consensus

- Would you change your opinion because everybody think otherwise?
- Participant arrived to a psychology lab with several other participants
- Other participants were confederates
- They would be asked to make judgments about some lines

Which of three lines was closest to a standard line

- Sometimes all Confederates sometimes gave an obviously wrong answer
- 30% of participants gave the same opinion with confederates
- WHY? Unaware of being incorrect?
- Uneasy about their own perception
- Wanted to appear the same as the majority

Would you change your opinion because everybody think otherwise?

- About 30% of participants did

Science and technology in modern life (Opinion Pools)

What Does Behavioral Science Encompass?

- Behavior = what you do and how you act
- Behavioral science
  - Cognitive and emotional functioning
  - Social behavior
  - Behavioral economics
- Goal = describe and explain how and why humans think, feel, and behave
Two Types of Research

- **Basic research** – conducted to understand psychological processes without regard for whether or not the knowledge is immediately applicable

- **Applied research** – conducted to find solutions for problems rather than to enhance general knowledge about psychological processes

Goals of Behavioral Research

1. **Describing Behavior**
   - What type of cereal certain people buy
   - Voting preferences
   - Changes in behavior across the lifespan
   - Patterns of aggression among chimpanzees

2. **Predicting Behavior**
   - Who will do well in a particular job
   - What personalities put people at risk for criminal behavior
   - Factors that predict happiness

3. **Explaining Behavior**
   - Research goes beyond what happened to see why it happened.
   - *Most behavioral researchers view explanation as the primary goal of science.*

What is Empirical Reasoning?

- Empirical = “based on observation”
- The “key” to empirical reasoning
  - Careful logic
  - Organized observation
  - Measurement
  - Open to scrutiny of others

Publishing in Peer-reviewed Journals

- Articles reviewed by experts
- APA style (Appendix A)
  - Abstract (summary)
  - Introduction
  - Method
  - Results
  - Discussion
  - References