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# **Week 2 Lecture - Research Sources**

Undergraduate Research Methods in Psychology

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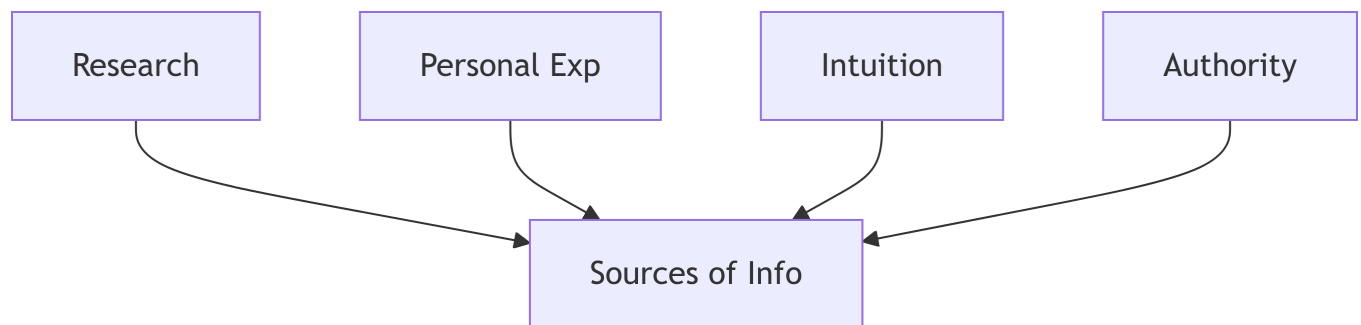
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# 1 Overview

## 1.1 Overview

- We can gain \_\_\_\_\_ from many origins; this is true of both scientific and common sources and:
  - Scientific Sources:
    - \* Journal \_\_\_\_\_
    - \* Books and edited books
    - \* Scientific \_\_\_\_\_
    - \* etc.
  - Common sources:
    - \* \_\_\_\_\_ outlets (and lots of them!)
    - \* Newspapers
    - \* Think tanks (private “research”)
    - \* “Well my friend said...”
- *But*, how do we \_\_\_\_\_ these sources - which ones are the “best” for drawing conclusions? (hint: research!)
  - Also, how do we read each of these \_\_\_\_\_ more critically?
- We’ll compare 4 categories of sources:



## 2 Research vs. Personal Experience

### 2.1 Overview

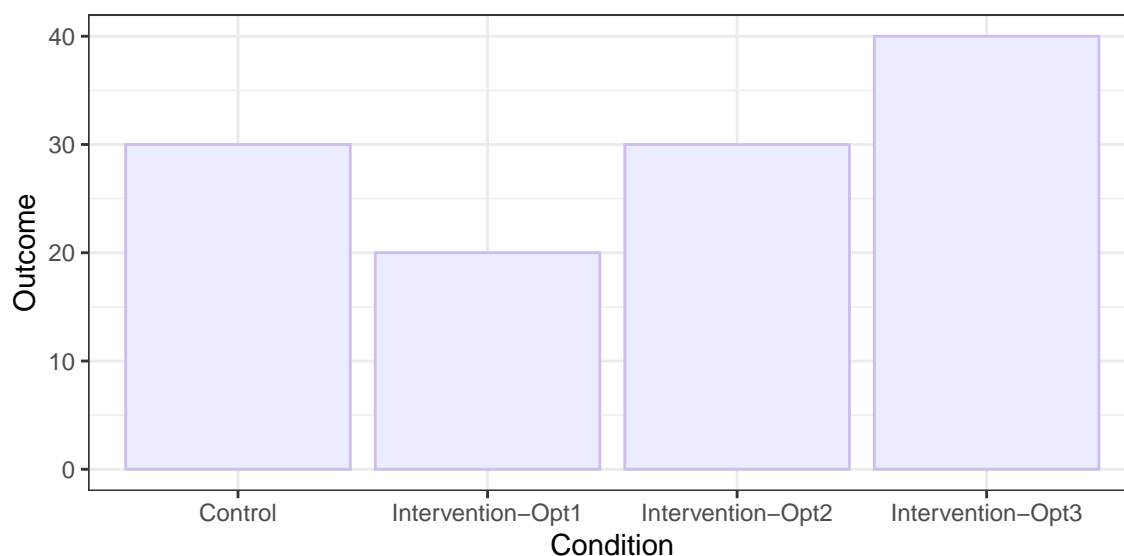
- Personal experience is simply the \_\_\_\_\_ that comes at us from every-day life.
  - This is when we learn from the \_\_\_\_\_ that occur to and around us.
  - *Example:* I learn to walk carefully (like a penguin!) on ice because I have slipped in the past when walking normally. But does walking like a penguin actually work for
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people to avoid slipping?

- We often rely on personal experience to make \_\_\_\_\_, but this does not always mean it is the most reliable source of information...

## 2.2 No Comparison

- A **comparison group** is a key \_\_\_\_\_ between scientific research and personal experience. We must compare our study results to some other benchmark, whether that is a \_\_\_\_\_ group (no intervention) or another type of intervention.
- Without a comparison group we have three \_\_\_\_\_ outcomes:
  - Our effect is \_\_\_\_\_ than control (no intervention) or other interventions
  - Our effect is \_\_\_\_\_ to control or other interventions
  - Our effect is \_\_\_\_\_ than control or other interventions



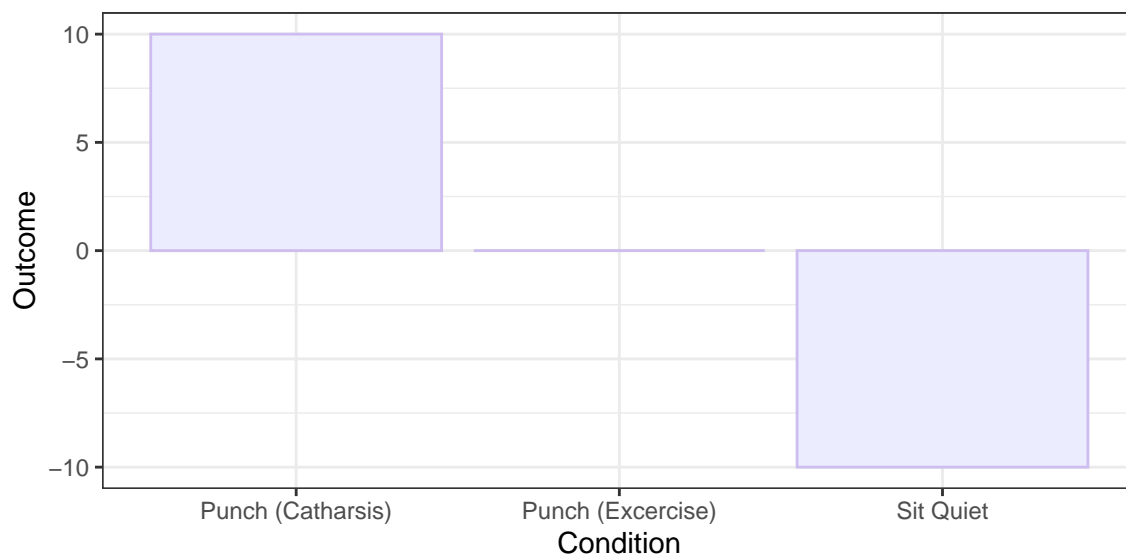
- **Example:** A researcher performs a social intervention to reduce feeling of hostility towards an “out-group”. It seems like the participants don’t harbor any major negative feelings towards the out-group at the end of the study. A success!? Maybe...
  - Why are the \_\_\_\_\_ (potentially) wrong here? What other comparisons are possible?
- You may have some belief about the \_\_\_\_\_ of an intervention (from personal experience), but you won’t have good \_\_\_\_\_ of its “real” effect, without a comparison group.

## 2.3 Experience is Confounding

- Why did something happen? \_\_\_\_\_ make it difficult to determine causation in our personal experiences. Confounds are variables that may change how or why something happens.
- Example: A professor addresses you in a disappointed tone on the first day of class. You assume it is due to them just disliking students.
  - Why are the \_\_\_\_\_ (potentially) wrong here? What other explanations are possible?
- Because of confounds, there may be these \_\_\_\_\_ :
  - The professor had a rough day at home and it taking it out on students (unfairly)
  - You forgot your first assignment, and were late
  - The professor has mistaken you for a different student
  - Any number of other possibilities!
- In our own lives it is difficult to impossible to isolate individual causes for certain outcomes, but in research, we have \_\_\_\_\_ and statistical controls for confounds

## 2.4 Research > Experience

- In research settings, we can better control for the \_\_\_\_\_ of confounds, and create comparison groups
- **Example:** Bushman's study (catharsis theory)



- Another tale of why scientific process > \_\_\_\_\_

## 2.5 Probability in Research

- Individual differences are \_\_\_\_\_ in theories! There are exceptions/edge cases to all hypotheses and, as we mentioned in the last lecture, we cannot account for all possible scenarios with a single \_\_\_\_\_.
- Research is always \_\_\_\_\_ which means it try to capture the majority of experiences or the net average of all cases
  - Which may mean your experiences may contradict the \_\_\_\_\_ of evidence in the research body - but that doesn't mean that your experience or the research consensus is "wrong"
- Connect to your previous statistics class: conclusions are based on p-values, which, in turn, are essentially a \_\_\_\_\_ of a certain outcome.
- A single case does not fully invalidate a theory or hypothesis. Instead, it may represent a unique case that differs in some way than the others. We must research \_\_\_\_\_ to understand why!
- *Example:* A medical doctor understands that a blood pressure drug works for \_\_\_\_\_ individuals with hypertension - but one of their patients isn't responding to it.

## 3 Research vs. Intuition

### 3.1 Bias in Intuition

- Recall that \_\_\_\_\_ is often like a "hunch" or a "gut feeling". We may describe intuition as being "pre-scientific."
- Unfortunately, our intuition may be swayed by certain sources of \_\_\_\_\_ in how we think...

#### 3.1.1 Convincing Narratives

- Have you ever met someone who could really \_\_\_\_\_ a story? Maybe a friend who is really good at making stuff up or a salesperson.
  - Freud certainly could! Many of his early theories drew on observations that *seemed* reasonable \_\_\_\_\_, and his psychoanalytic theory is prevalent to this day.
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- This is a sort of “just-makes-sense” thought process, where we think - “well, naturally, it just \_\_\_\_\_ that way”
- However, this intuition can be an incorrect \_\_\_\_\_ and may prevent us from fully exploring whether things are actually as we think they are
- *Example:* “Scared straight” program for scaring kids out of certain lifestyles

### 3.1.2 Availability Heuristic

- *Example:* Anyone afraid of shark attacks in the ocean?
- You may think that they happen often, but really, they are exceedingly \_\_\_\_\_. But because of popular media and news hype, the idea of shark attacks is much more readily **available** cognitively.
- A **heuristic** is just a cognitive \_\_\_\_\_, it allows us to skip the process of thinking to come to conclusion. However, in the scientific theory-data-hypothesis cycle, it threatens to obscure what is actually going on
- This heuristic often causes over- or under- estimations of certain situations occurring

### 3.1.3 Present/Present Bias

- The **present/present bias** may be best understood as an extension of failing to account for \_\_\_\_\_ groups (see [No Comparison](#))
  - If we don’t see a possible outcome, do we fully account for it?
- *Example:* Remember Harlow’s monkeys’ third option...
- *Additional Example:* I ran in sneakers A and my run was great because of them! But what about sneakers B?
- This may also be understood as also reflecting a \_\_\_\_\_ to recall certain (critical) events, but not others

### 3.1.4 Confirmation Bias

- This is our tendency to \_\_\_\_\_ our already closely-held beliefs by selectively praising, criticizing, and noticing information that reinforces the belief
    - *Especially* relevant to situations like politics, where people have a great motivation to protect “their” \_\_\_\_\_
-

- This often causes \_\_\_\_\_ bias in evidence-gathering and is likely to lead to a single conclusion: “I’m right”
- *Example:*
  - Google search: “Evidence that the earth is flat” vs.
  - “Evidence of the earth’s shape”

### 3.1.5 Bias Blind Spot

- Recall those last few examples of bias? \_\_\_\_\_ are just as susceptible to those same fallacies as anyone else.
- It pays dividends to be \_\_\_\_\_ and curious towards possibilities, even when our intuition, experiences, and even research may say otherwise.
- Especially as scientists, there is a \_\_\_\_\_ to believe we are uniquely resistant to bias, *we aren’t*
  - Want to eliminate bias? Prove it with sound science, methods, and reporting

## 3.2 Intuitive Thinking vs Scientific (Empirical) Thinking

- Taken together, there are lots of ways that intuition and \_\_\_\_\_ experience can let us down in the general conclusions we \_\_\_\_\_
- In science, we are interested in using *empirical* principals to guide our thinking and writing, as to capture the overall \_\_\_\_\_ in data and phenomena (remember, science is probabilistic)
- Simply “conducting research” does not \_\_\_\_\_ protect us from biases - we must be keenly mindful of the risks on biases in our research processes, starting with literature reviews

## 4 Research vs. Authority

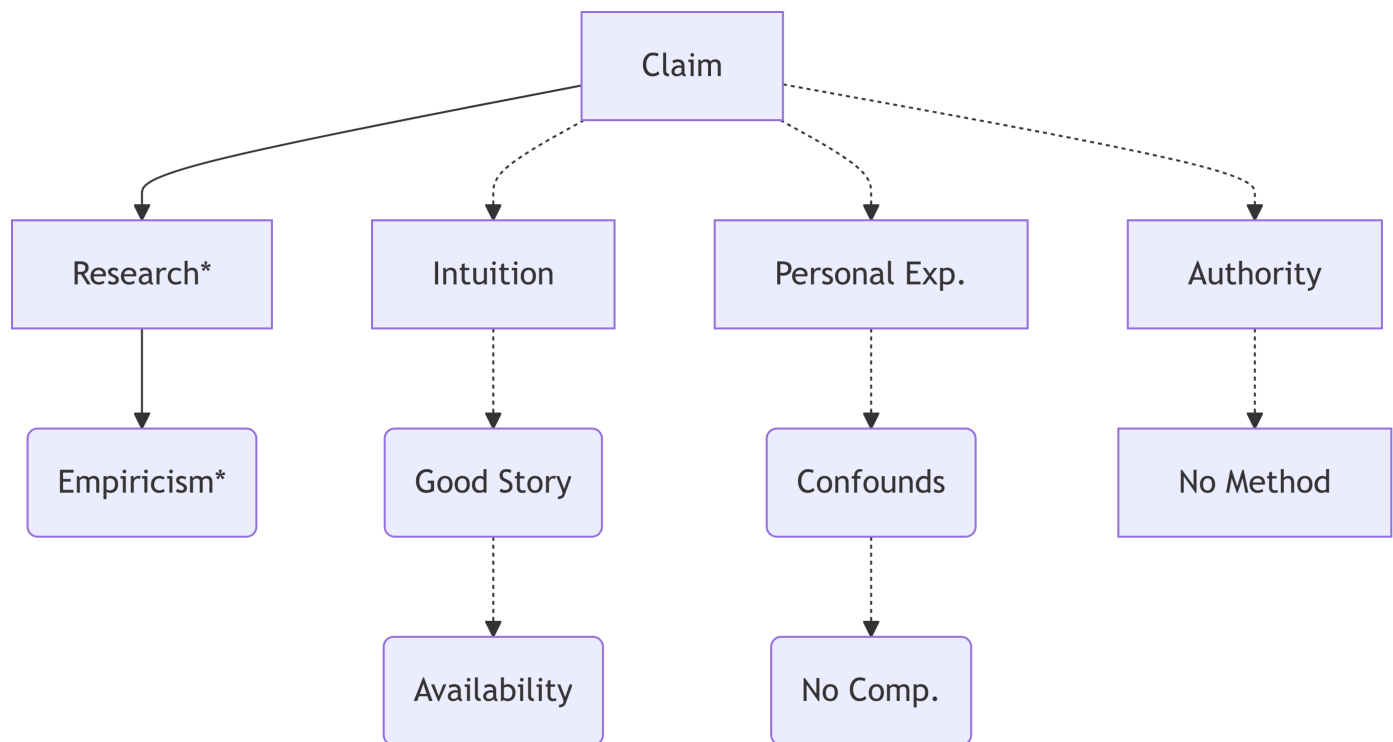
### 4.1 Faults in Appealing to Authority

- We tend to \_\_\_\_\_ many authorities throughout our lives: parents, teachers, professors, textbooks (via their authors), administrators, etc.
  - However, we ought to distinguish between trusting a \_\_\_\_\_ for their perceived expertise and trusting a *process* for producing sound claims
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- Why do we trust journal articles? It isn't just because the researchers are simply \_\_\_\_\_, but rather, that the peer-review process is well set up to prevent poor science from slipping through
- Therefore, we must \_\_\_\_\_ *the method* by which a person comes to a conclusion, rather than basing our opinion of the person. This is the purpose of written articles, to interrogate the *how*, rather than the *who*

## 4.2 Flow Chart of Claims



## 5 Examining Research Sources

### 5.1 Types of Articles

- **Original Empirical Journal Articles:** Some form of \_\_\_\_\_ study in which a scientific process and analysis were conducted. These are often some type of novel observation or \_\_\_\_\_. Usually contains some form of introduction, methods, results, and discussion.

- **Literature Review Journal Articles:** A comprehensive literature review that \_\_\_\_\_, synthesizes, and compounds the many available empirical studies in a specific research area. Often, comes across as an extended introduction section.
  - Also, a great starting point when doing a literature review for your own \_\_\_\_\_!
- **Meta-analysis:** An extension of a literature review articles that calculates a \_\_\_\_\_ effect size from the surveyed research studies. A more quantitative version of a classic literature review.

## 5.2 Types Books

- **Scientific Books:** a full-length scientific book written by the same single or multiple authors throughout. Focuses on a single \_\_\_\_\_, and functions as a sort of extended literature review.
- **Edited Books:** a collaborative effort in which many experts compose \_\_\_\_\_ on specific topics. These are usually not peer-reviewed to the same extent as journal articles - but the authors are usually some of the most respected researchers in an area. Be careful of appeals to \_\_\_\_\_ because of this!
  - These are popular among applied practitioners of psychology ( \_\_\_\_\_ ), because it allows them to keep up with developments and ideas in a nice range of areas.

## 5.3 Finding & Reading Research

- We will cover this in a separate workshop/presentation! This is a critical skill to develop as an early researcher, and is fairly complicated.
- We will also cover how to determine the sections of articles, and what questions you should ask of yourself in each section.

## 5.4 Scientific Journalism's Role

- Empirical articles will *a/ways* be the \_\_\_\_\_ way to gain scientific knowledge. Edited books, literature reviews, meta-analyses, etc. may all be good \_\_\_\_\_ sources as well.
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- However, popular scientific journalism may help you find new, findings to your interests - just don't cite it directly. Instead, go to the original articles.