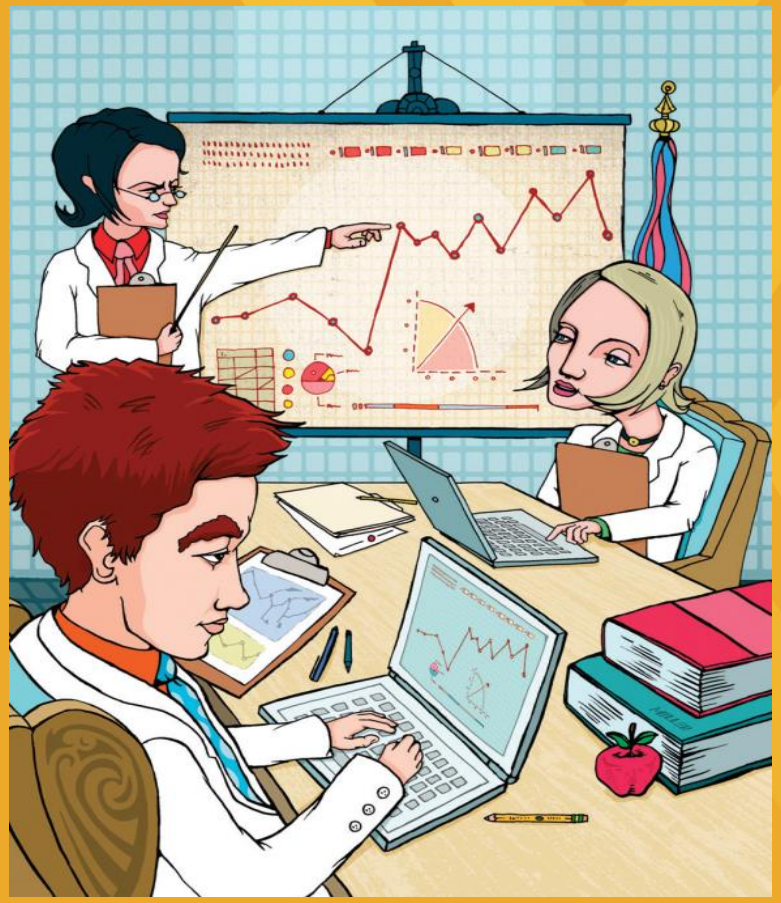
# Business Research Methods

## Module 1:
## The Research Process

# TODAY'S AGENDA

- DESCRIBE THE MEANING OF EVIDENCE-BASED PRACTICE
- UNFOLDING THE RESEARCH PROCESS
- AN ANALOGY OF THE RESEARCH PROCESS
- SOFT INTRODUCTION TO AN IMPORTANT METRIC CALLED THE CORRELATION COEFFICIENT



# WHAT IS EVIDENCE-BASED PRACTICE?

# Evidence-based practice

- Origins = medical field
- Dr. David Sackett (2006) defined it as “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.”
- Sure – evidence exists! So, what else would doctors use to ply their trade?

# Evidence-based practice

"Indeed, we would argue, managers are actually much more ignorant than doctors about which prescriptions are reliable – and they're less eager to find out. If doctors practiced medicine like many companies practice management, there would be more unnecessarily sick or dead patients and many more doctors in jail or suffering other penalties for malpractice…

It's time to start an evidence-based movement in the ranks of managers."

Pfeffer & Sutton (2006; HBR)

# Evidence-based practice

# Evidence-based ~~practice~~ management

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- Evidence-based management means translating principles based on best evidence into organizational practices.

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  - What is does it mean?

# Evidence-based ~~practice~~ management

- Evidence-based management means translating principles based on best evidence into organizational practices.

- Let's deconstruct this definition of EBMgmt…
  - What is does it mean?
  - What is inherent in the definition (e.g., does it make any assumptions?)

# EBMgmt: Take away point

## OUR DESTINATION

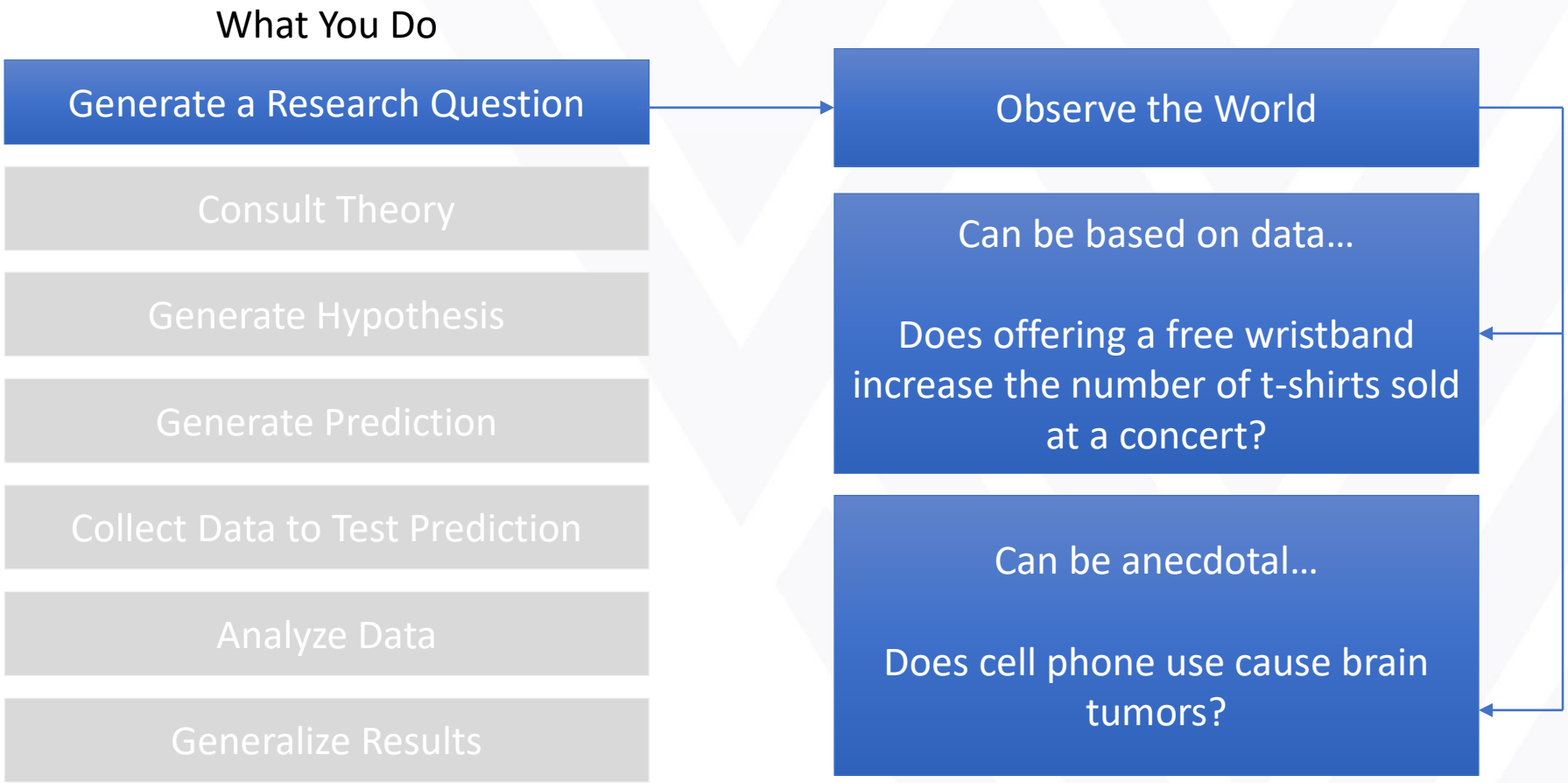
# Unfolding the research process

# Unfolding the research process

What You Do

- Generate a Research Question
- Consult Theory
- Generate Hypothesis
- Generate Prediction
- Collect Data to Test Prediction
- Analyze Data
- Generalize Results

# Unfolding the research process



# Italian court rules mobile phone use caused brain tumour

**Court awards pension to employee who claimed work-related use of a mobile led to him developing a benign tumour**

▲ An Italian court has ruled that excessive, work-related use of a mobile phone caused an executive to develop a benign brain tumour. Photograph: Alamy

# LANDMARK CASE Italian court rules man's brain tumour 'was caused by using his mobile phone for work'

The benign tumour – which means it was not cancerous – was the outcome of too much work-related phone use, the judge ruled

By Andrea Downey, Digital Health Reporter
21st April 2017, 8:41 am | Updated: 21st April 2017, 11:07 am

CBS NEWS NEWS SHOWS VIDEO

# Italian court rules man's tumor caused by mobile phone

Portrait of a tired young business man bored during meeting / ISTOCKPHOTO

Share / Tweet / Reddit / Flipboard / Email

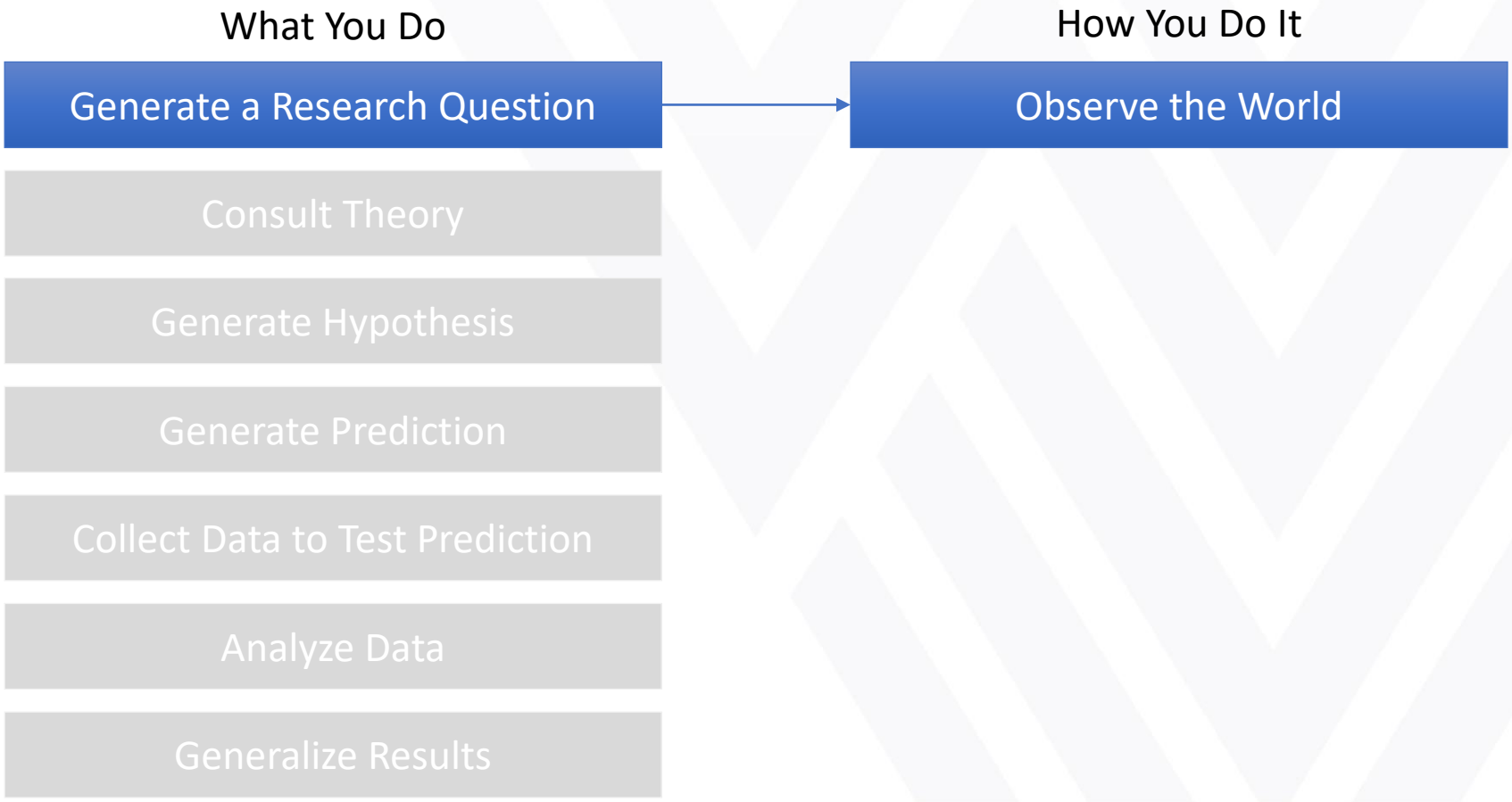
ROME | Italy's top court has ruled that a businessman developed a benign brain tumor because he held a cell phone to his ear for hours daily for his job and deserves worker's compensation.

# Cell phones DO fuel tumors, Italian court rules: Man wins $7,500 a year for life after developing brain mass 'from using his company phone'

- Roberto Romeo used his work cell for three hours a day for 15 years at Telecom
- Over time, he developed a non-cancerous tumor and loss of hearing in one ear
- Now, an Italian court has awarded him $7,500 a year in social security payments
- The court refused to accept studies funded by the telecom industry as evidence

By MIA DE GRAAF FOR DAILYMAIL.COM
**PUBLISHED:** 11:05 EDT, 21 April 2017 | **UPDATED:** 12:18 EDT, 21 April 2017

# Unfolding the research process



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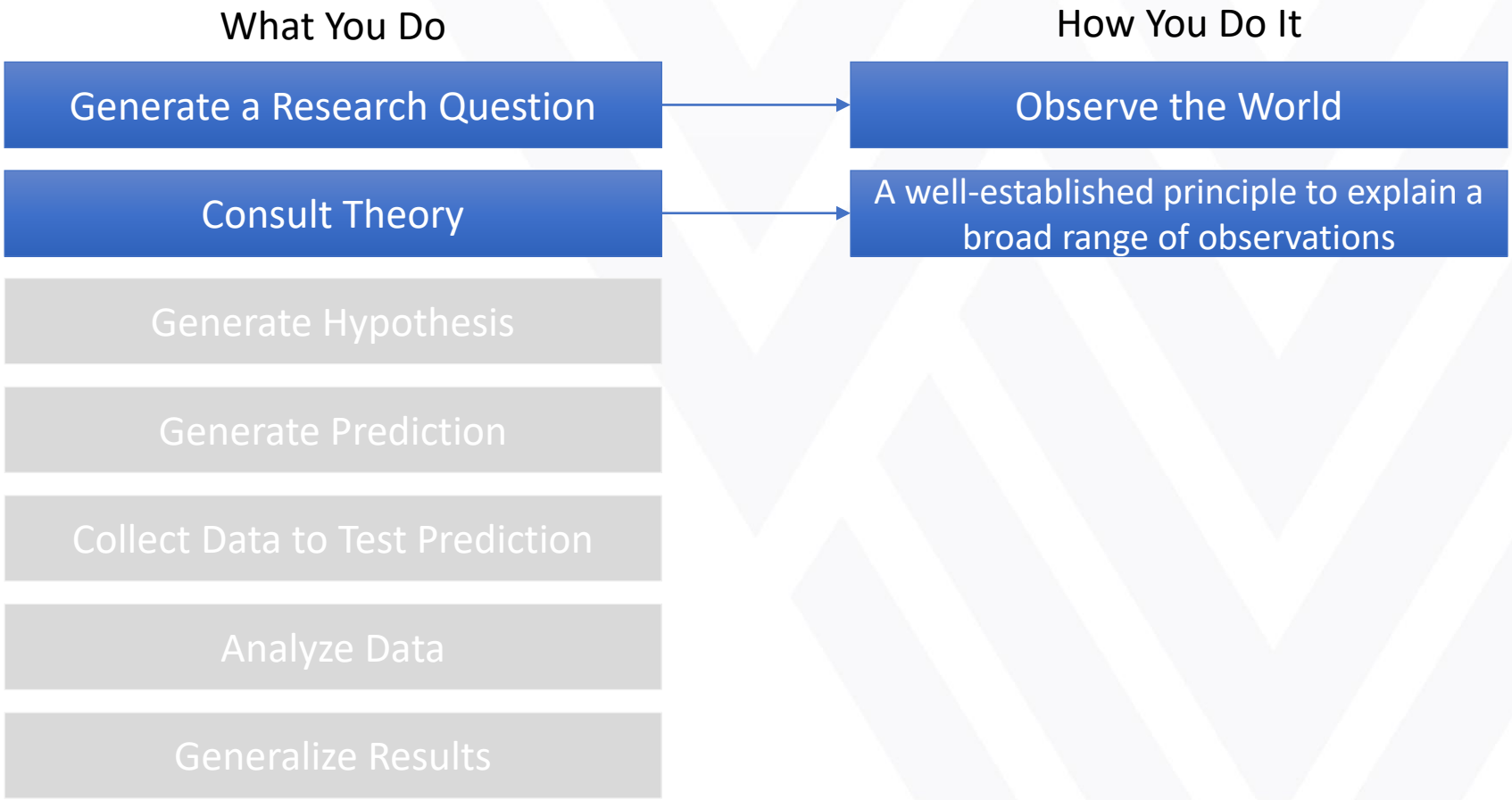

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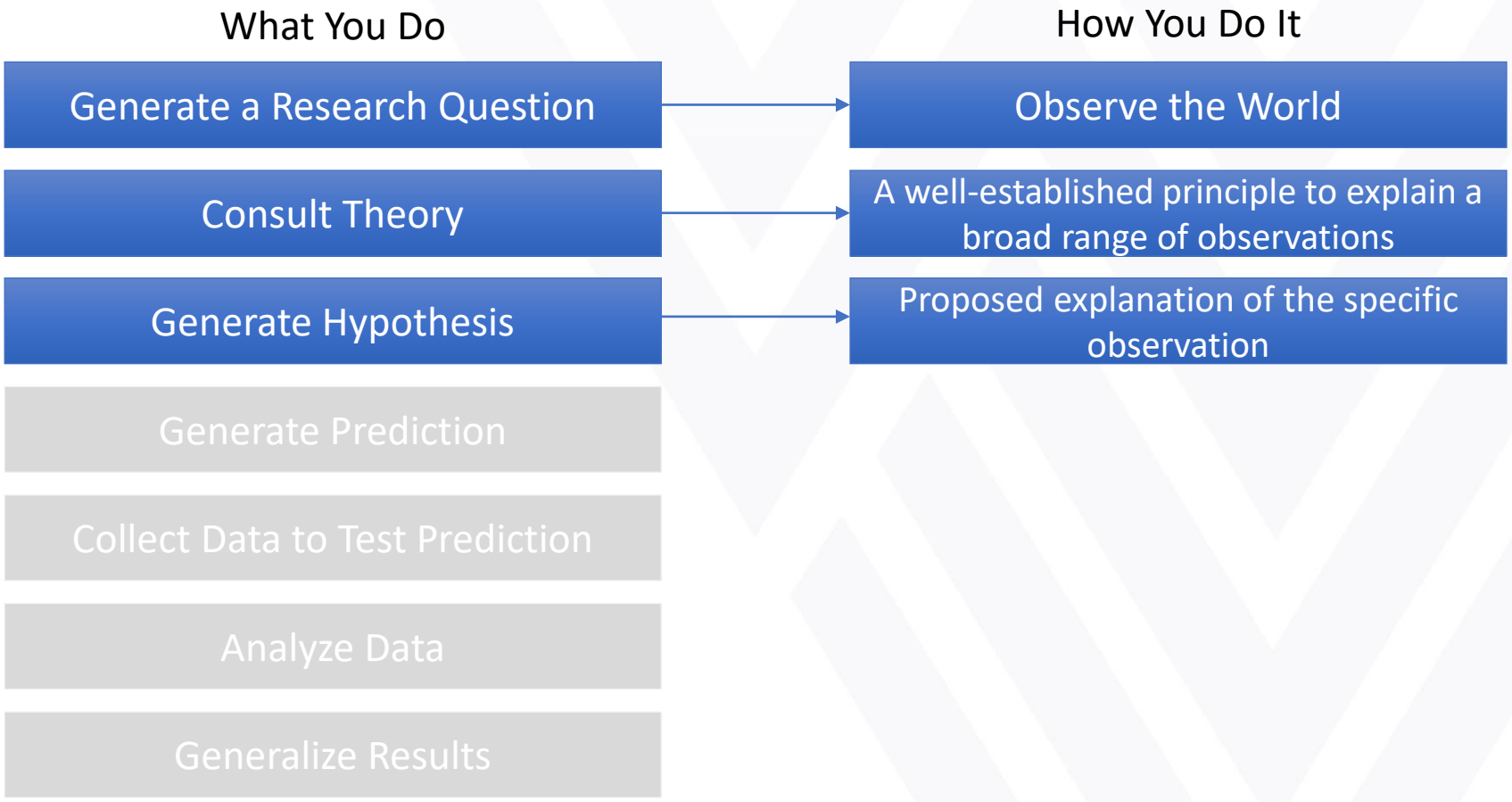

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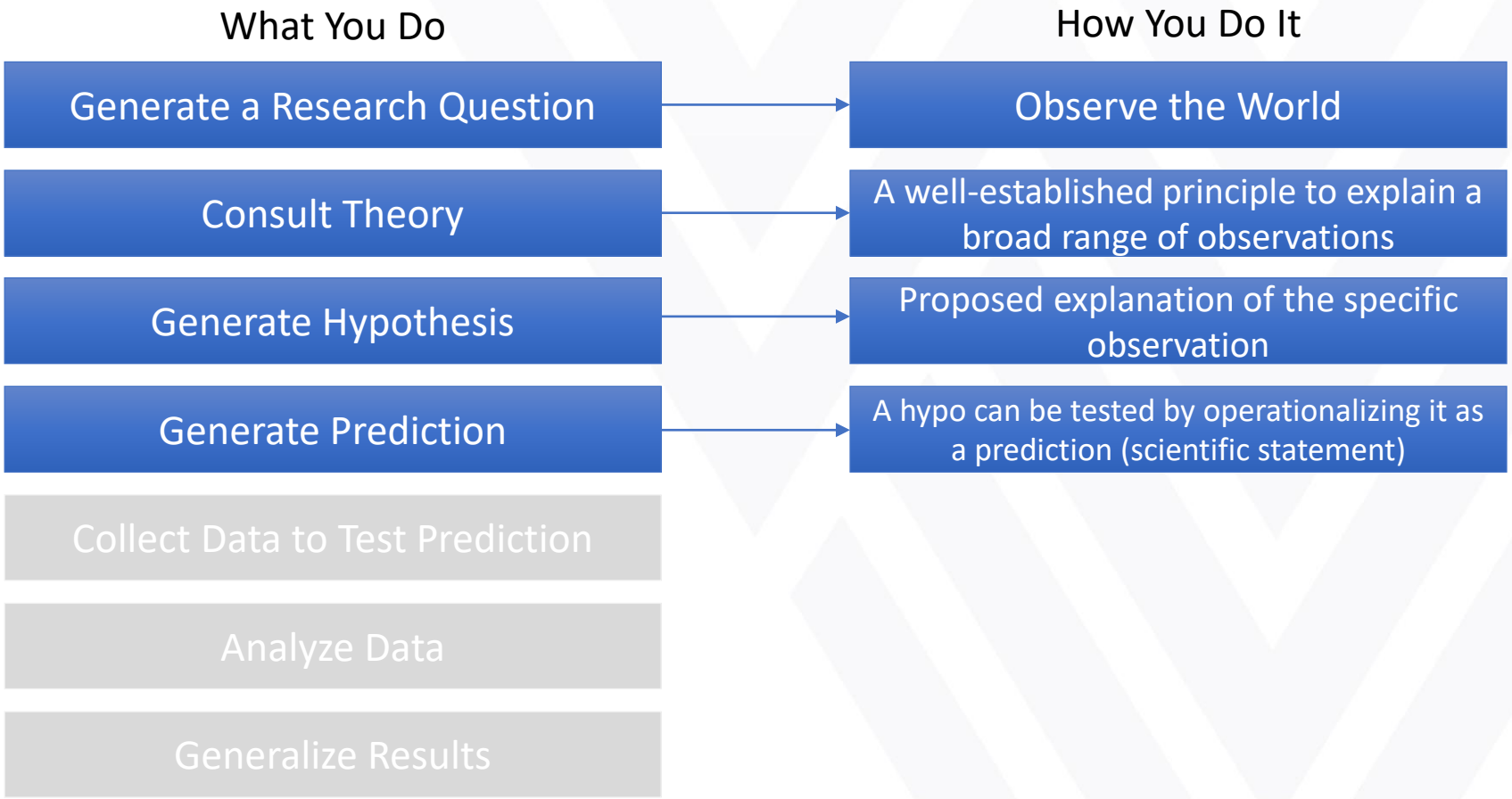

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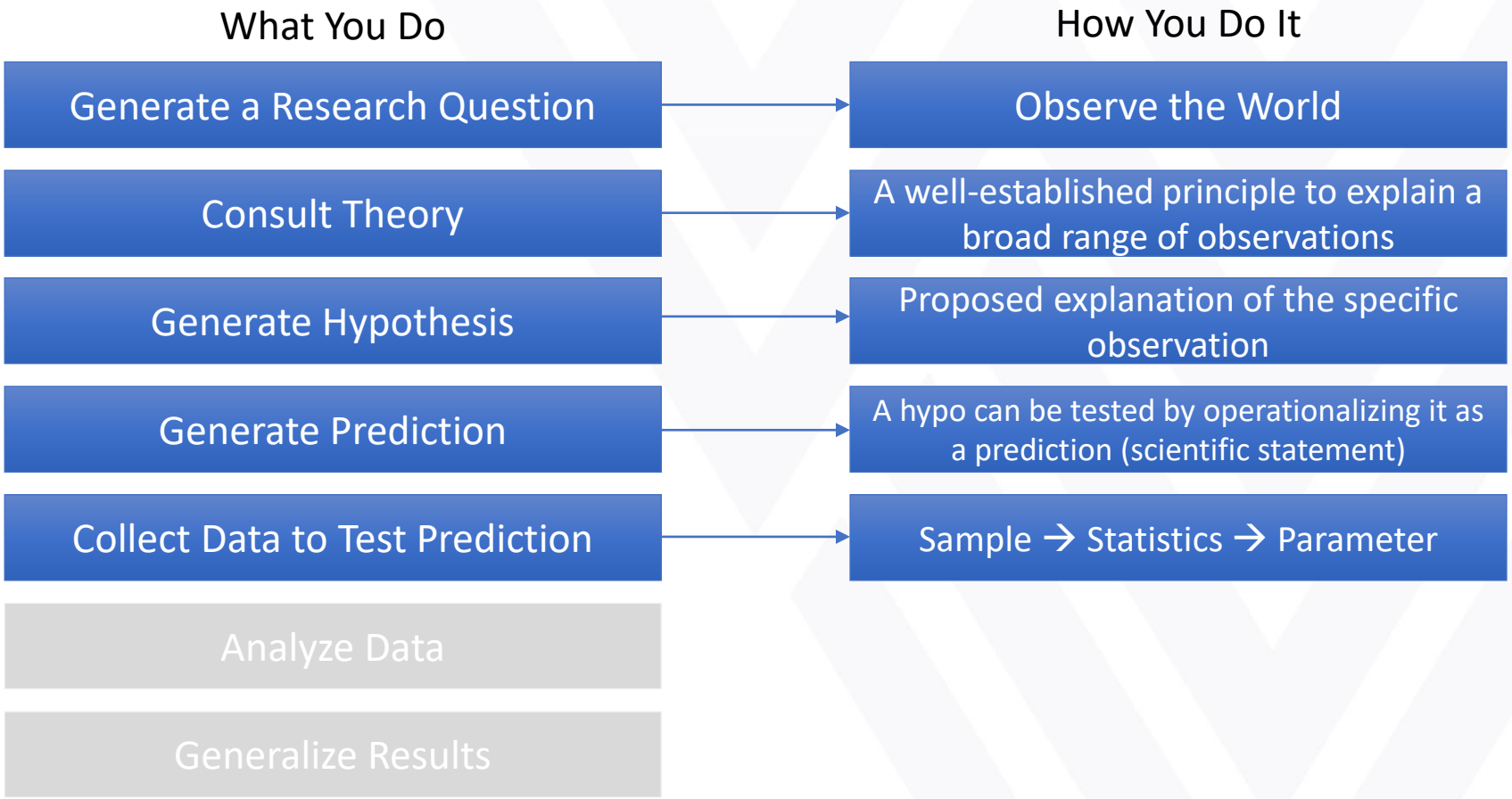

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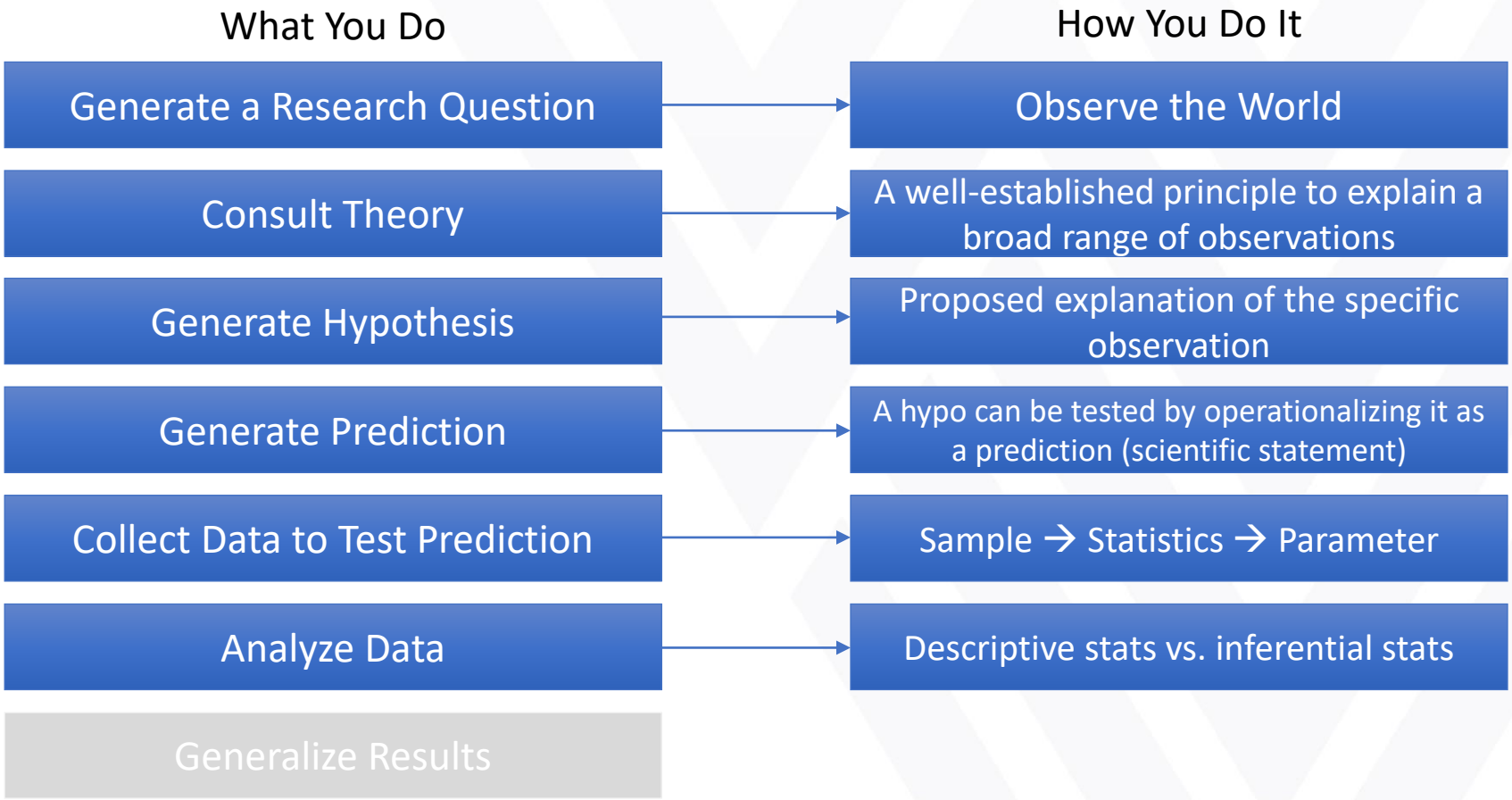

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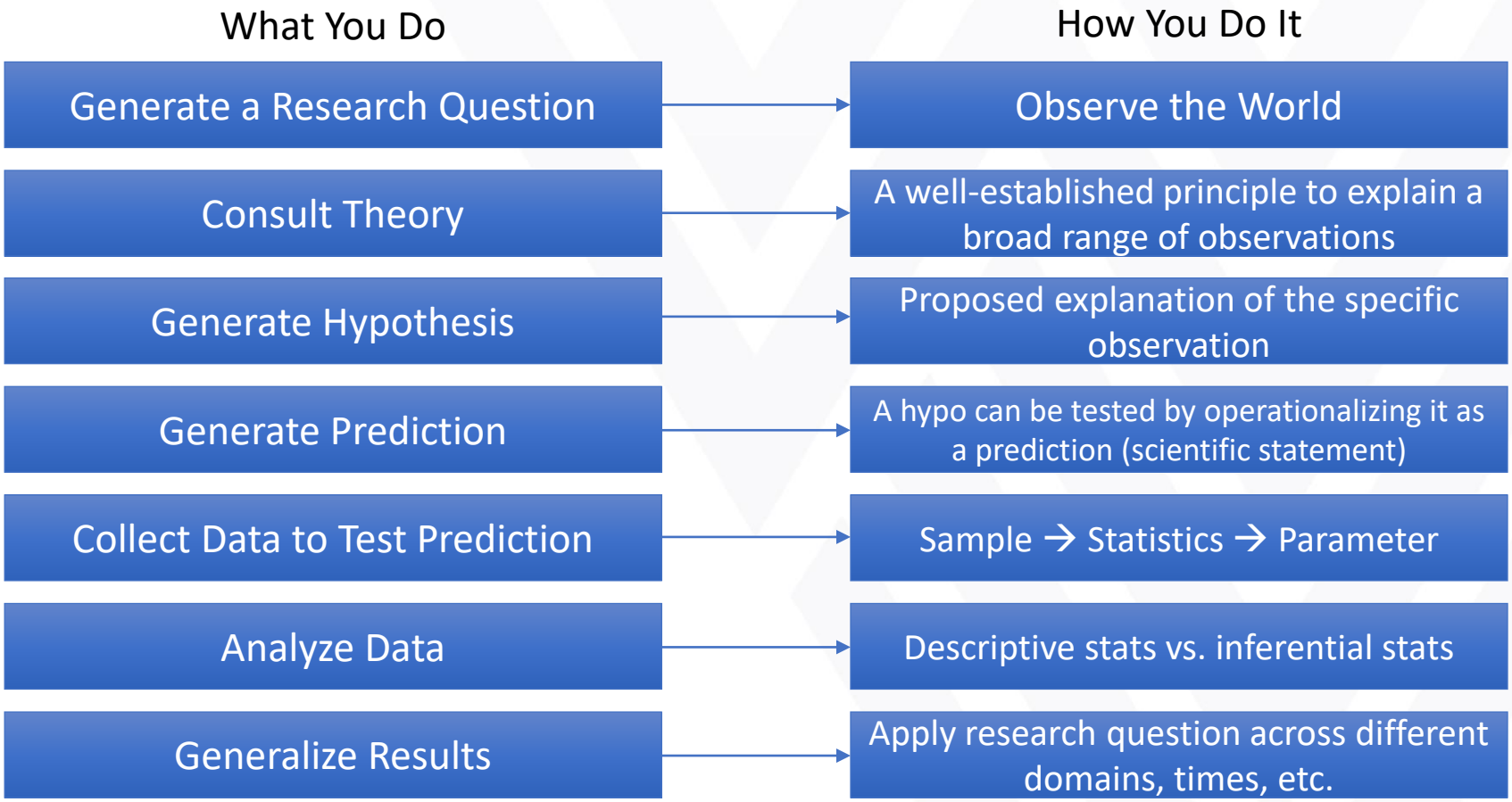
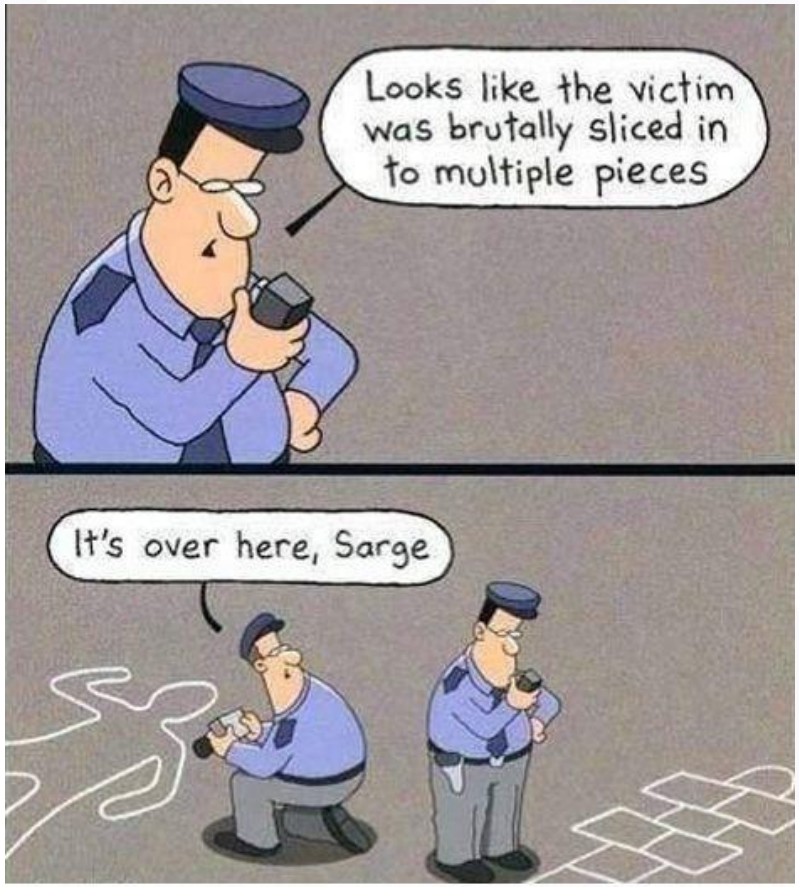


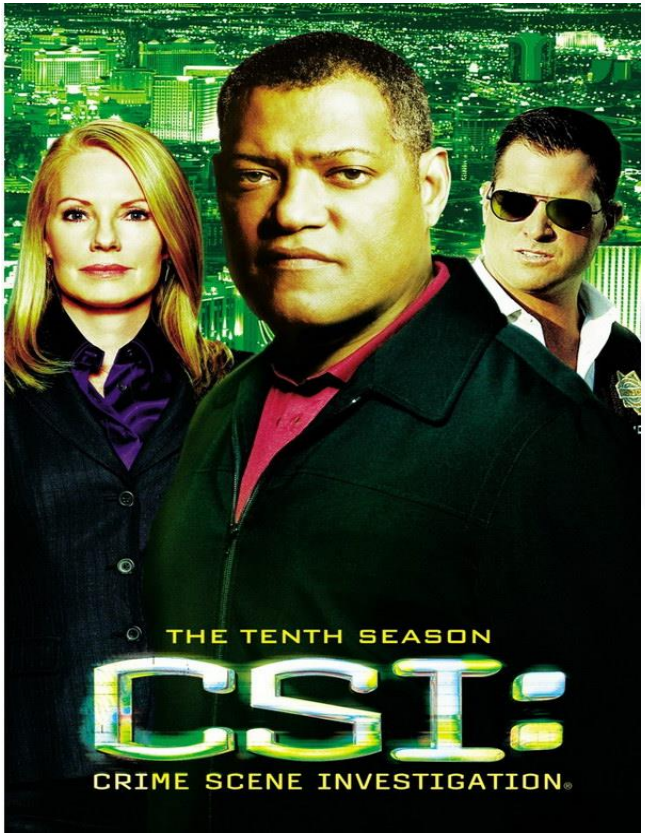
# Crime in the classroom: An analogy

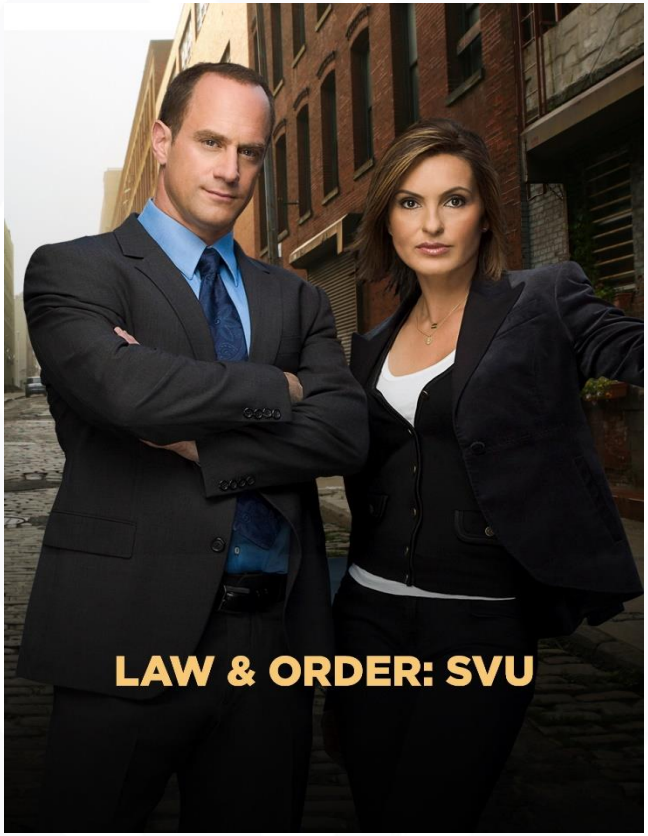


# Crime in the classroom: An analogy

Before we begin, we have a very importance decision to make…

# Crime in the classroom: An analogy



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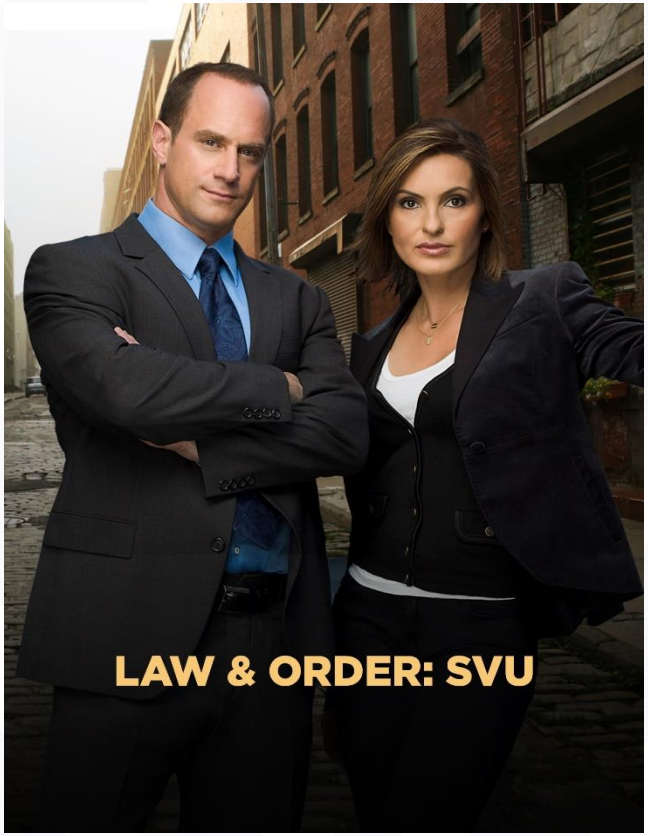

# Crime in the classroom: An analogy


- What will these characters do to solve the crime?

# Crime in the classroom: An analogy

- What types of evidence might be available?
  - Is some evidence more trustworthy than others? Why?
  - What do you consider to be the best/most ideal type of evidence?

# Crime in the classroom: An analogy

- During the trial, lawyers prosecute (present evidence) and defend (use other evidence) to persuade jury
- The jury decides if the plaintiff is guilty or not guilty

# Crime in the classroom: An analogy

- In sum…
  - Are there different types of evidence?
  - Is some evidence better than others?
  - Why is some evidence better than others?

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TRUSTWORTHY EVIDENCE IS IMPORTANT

# Crime in the classroom: An analogy

Research articles published in scientific journals are (usually) a great source of trustworthy evidence

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**However, a phenomenon referred to as the *science-practice gap* exists**

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# Why understanding research is important

- Helps us to better understand what's "really" going on
  - Helps guide decision and action

# Why understanding research is important

- Helps us to better understand what's "really" going on
  - Helps guide decision and action
- A soft introduction to the effect size will help you better understand HRM research
- Luckily, we must understand only two dimensions to interpret an effect size

**Magnitude**
**[ranges from 0 to 1]**

+

**Direction**
**[positive or negative]**

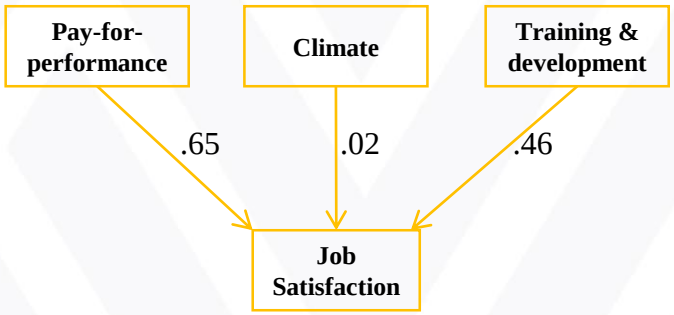
# A motivating example

What you see now…
(Averages)


**Q**: What actions should HR pursue to improve loyalty?

**A**: Not sure… let's try this…

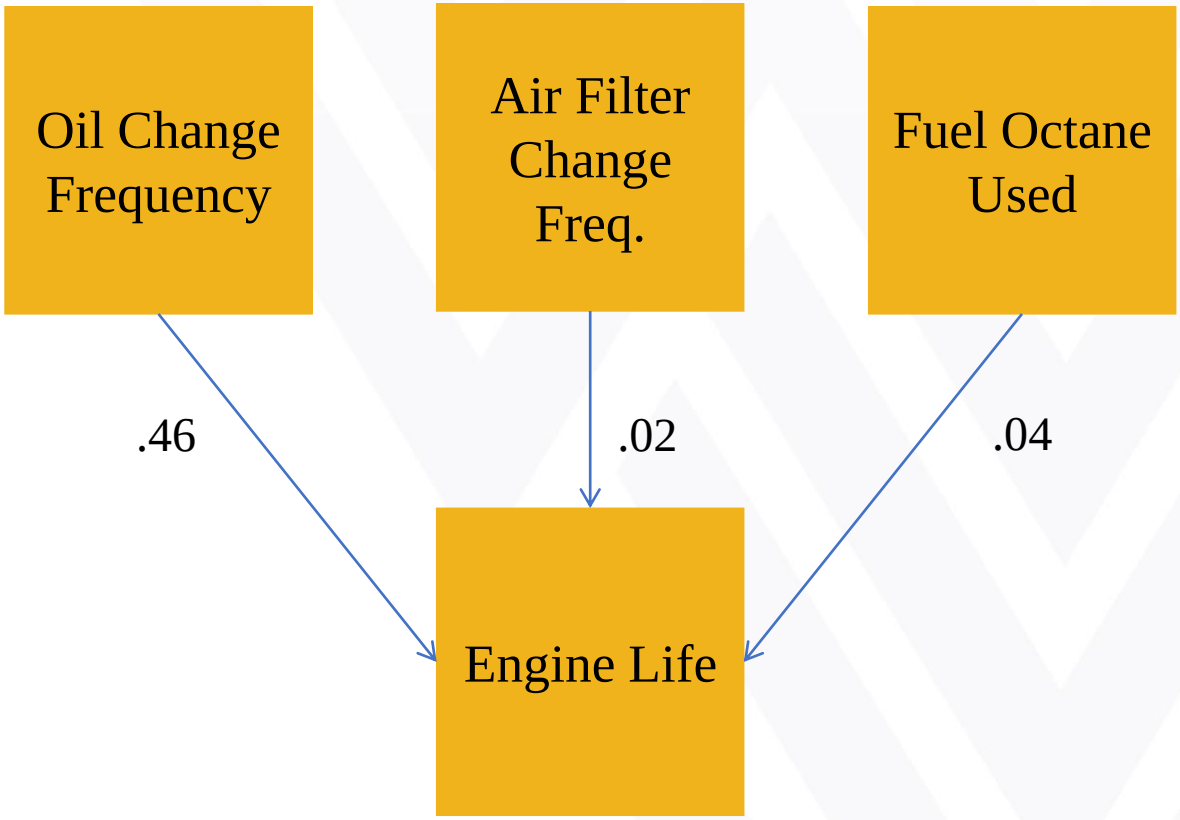
What you're missing…
(*Relationships*: an additional "lens")




**Q**: What actions should MGT pursue to improve JobSat?

**A**: Focus on improving SS and PA, in order of importance.

# Another motivating example



# The Diverse World of Research



**Objectives** To determine whether parachutes are effective in preventing major trauma related to gravitational challenge.

auma related
of


## Abstract

**Objectives** To determine whether parachutes are effective in preventing major trauma related to gravitational challenge.
**Design** Systematic review of randomised controlled trials.
**Data sources:** Medline, Web of Science, Embase, and the Cochrane Library databases; appropriate internet sites and citation lists.
**Study selection:** Studies showing the effects of using a parachute during free fall.
**Main outcome measure** Death or major trauma, defined as an injury severity score $>15$.
**Results** We were unable to identify any randomised controlled trials of parachute intervention.
**Conclusions** As with many interventions intended to prevent ill health, the effectiveness of parachutes has not been subjected to rigorous evaluation by using randomised controlled trials. Advocates of evidence based medicine have criticised the adoption of interventions evaluated by using only observational data. We think that everyone might benefit if the most radical protagonists of evidence based medicine organised and participated in a double blind, randomised, placebo controlled, crossover trial of the parachute.


accepted intervention was a fabric device, secured by strings to a harness worn by the participant and released (either automatically or manually) during free fall with the purpose of limiting the rate of descent. We excluded studies that had no control group.

### Definition of outcomes

The major outcomes studied were death or major trauma, defined as an injury severity score greater than 15.[6]

### Meta-analysis

Our statistical apprach was to assess outcomes in parachute and control groups by odds ratios and quantified the precision of estimates by 95% confidence intervals. We chose the Mantel-Haenszel test to assess heterogeneity, and sensitivity and subgroup analyses and fixed effects weighted regression techniques to explore causes of heterogeneity. We selected a funnel plot to assess publication bias visually and Egger's and Begg's tests to test it quantitatively. Stata software, version 7.0, was the tool for all statistical analyses.

## Results

Our search strategy did not find any randomised controlled trials of the parachute.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*BMJ* 2003;327:1459–61

# The Diverse World of Research

Social Psychological and Personality Science
2(6) 618-626

DOI: 10.1177/1948550611404707
http://spps.sagepub.com
SAGE

## Touching a Teddy Bear Mitigates Negative Effects of Social Exclusion to Increase Prosocial Behavior

**Kenneth Tai[1], Xue Zheng[1], and Jayanth Narayanan[1]**

**Abstract**

There is little empirical research to date that looks at how the deleterious effects of social exclusion can be mitigated. We examined how touching an inanimate object—a teddy bear—might impact the effect of social exclusion on prosocial behavior. Across two studies, we found that socially excluded individuals who touched a teddy bear acted more prosocially as compared to socially excluded individuals who just viewed the teddy bear from a distance. This effect was only observed for socially excluded participants and not for socially included (or control) participants. Overall, the findings suggest that touching a teddy bear mitigates the negative effects of social exclusion to increase prosocial behavior. In Study 2, positive emotion was found to mediate the relationship between touch and prosocial behavior. These results suggest a possible means to attenuate the unpleasant effects of social exclusion.

# The Diverse World of Research

Journal of Applied Psychology
2008, Vol. 93, No. 5, 1139–1146


0021-9010/08/$12.00 DOI: 10.1037/0021-9010.93.5.1139

## Exploring the Handshake in Employment Interviews

Greg L. Stewart and Susan L. Dustin
University of Iowa

Murray R. Barrick
Texas A&M University

Todd C. Darnold
Creighton University

The authors examined how an applicant's handshake influences hiring recommendations formed during the employment interview. A sample of 98 undergraduate students provided personality measures and participated in mock interviews during which the students received ratings of employment suitability. Five trained raters independently evaluated the quality of the handshake for each participant. Quality of handshake was related to interviewer hiring recommendations. Path analysis supported the handshake as mediating the effect of applicant extraversion on interviewer hiring recommendations, even after controlling for differences in candidate physical appearance and dress. Although women received lower ratings for the handshake, they did not on average receive lower assessments of employment suitability. Exploratory analysis suggested that the relationship between a firm handshake and interview ratings may be stronger for women than for men.

*Keywords:* handshake, employment interviews, first impressions

# Understanding the effect size

- A real life example

## Auto insurance premiums tied to credit score

Gina Roberts-Grey

*Jan 29th 2010 at 5:00PM*

Text Size A | A | A

*Filed under: Credit, Insurance, Credit Reports, Credit Cards, Insurance - Car Insurance*

3 tweets

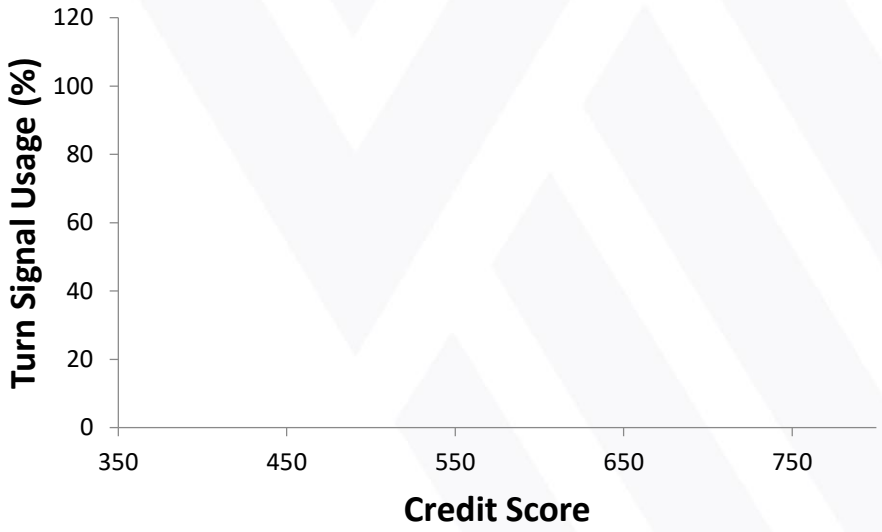
retweet

You might expect a plunging credit score to affect your ability to qualify for a car loan or how high the interest rate on your credit card will soar. But too often Americans don't realize a plunging credit score can cost them big bucks on insurance premiums.

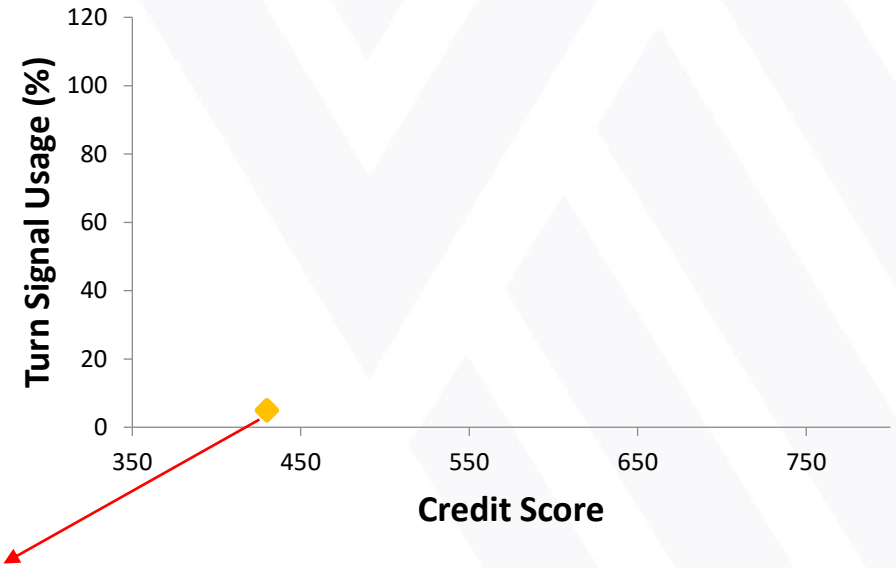

John Harrelson, Getty Images

One of the biggest mistakes insurers say people make is not realizing when their credit score is tanking.

# Understanding the effect size

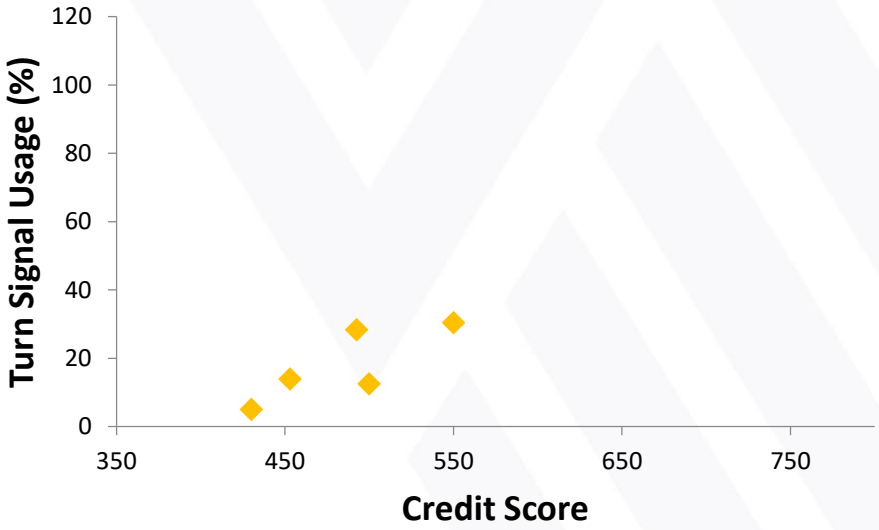


# Understanding the effect size




**The jerk who almost hit me!!**

# Understanding the effect size



# Understanding the effect size

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**As credit score ↑**

**Turn signal usage ↑**

**= POSITIVE**

# Understanding the effect size

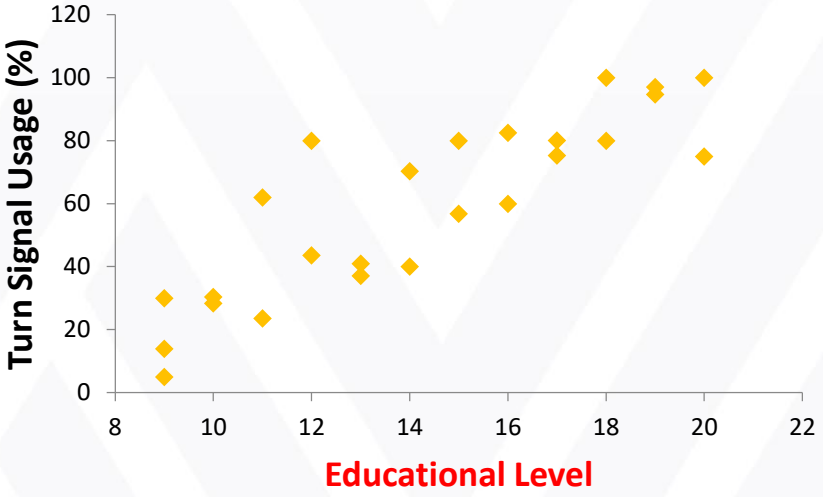

**As credit score ↑**

**Turn signal usage ↑**

**= POSITIVE**

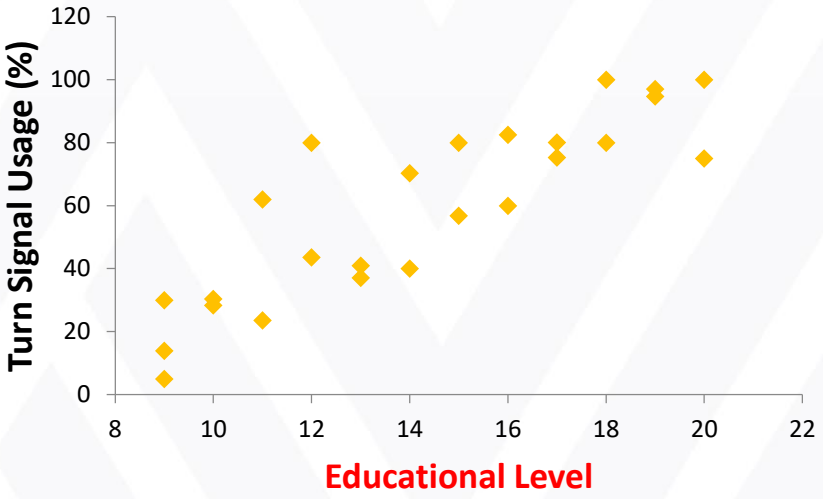
**It would be nice to assign a number to the data to describe the STRENGTH of the relationship**

# Understanding the effect size


- **Imagine that you are an actuary for an auto insurance company…**
  - Assume that you can only choose one of the two above (ceteris paribus conditions)
  - Also assume that good turn signal habits are associated with fewer car crashes
  - Which of these two "predictors" (credit score or educational level) would recommend your insurance company use?

# Understanding the effect size


- **Now which would you choose?**
- **Herein lies the value of statistics. The '*r*' is the correlation value.**
  - (note: you can't always "see" the difference, as you might above)

# Understanding the effect size

- Which is the stronger correlation?

  .34

  -.83

# Understanding the effect size

- Which is the stronger correlation?

  .02

  -.02

# Understanding the effect size

- What is a strong or weak correlation?

- "Rule of thumb"

| | | | | |
|---|---|---|---|---|
| .00 | → | .18 | = | weak |
| .18 | → | .39 | = | moderate |
| .39 | → | 1.00 | = | strong |

*Note*: Values above are absolute values, $|r|$.

# Understanding the effect size

TABLE 1. "REGULAR" CORRELATION MATRIX

| Variable | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Supplier innovation | 5.05 | 0.75 | - | | | | | | | | | | | | | |
| 2. Supplier innovation knowledge | 5.43 | 0.99 | .35** | (.83) | | | | | | | | | | | | |
| 3. Customer innovation know. | 4.93 | 1.17 | .29** | .29** | (.85) | | | | | | | | | | | |
| 4. Embedded ties | 5.58 | 0.86 | .22** | .22** | .13 | (.72) | | | | | | | | | | |
| 5. Relationship length | 12.28 | 12.36 | .03 | -.03 | -.04 | .00 | - | | | | | | | | | |
| 6. Relationship formalization | 4.28 | 1.49 | .04 | .17* | .01 | .11 | .02 | - | | | | | | | | |
| 7. CRS investments | 2.96 | 0.97 | .15 | .09 | .15 | .25** | .09 | .03 | (.84) | | | | | | | |
| 8. Supplier financial performance | 4.73 | 1.38 | .23** | .16* | .11 | .33** | .12 | .02 | .14 | (.93) | | | | | | |
| 9. Supplier strategic advantage | 5.27 | 1.20 | .32** | .21 ** | .20* | .27** | .06 | -.00 | .19* | .43** | (.81) | | | | | |
| 10. Customer dependence | 0.18 | 0.39 | .07 | .09 | -.01 | .01 | -0.1 | -.1 | .02 | .04 | .03 | - | | | | |
| 11. Market turbulence | 4.30 | 1.18 | .20* | .20* | .27** | .09 | .04 | .15 | .13 | .11 | .00 | -.10 | (.83) | | | |
| 12. Technological turbulence | 4.50 | 1.16 | .15 | .14 | .14 | .05 | .02 | .19* | .11 | .02 | .11 | .04 | .40** | (.80) | | |
| 13. Opportunism | 2.84 | 1.10 | -.24** | -.26** | -.25** | -.25** | .09 | .28** | -.04 | -.22** | -.31** | .07 | -.06 | .07 | (.78) | |
| 14. Knowledge redundancy | 2.94 | 1.26 | -.17* | -.09 | -.12 | -.14 | -.00 | .12 | .11 | -.02 | -.07 | -.10 | .09 | .06 | .07 | - |

Now that you're experts in the correlation coefficient, MANG should be easy, right?

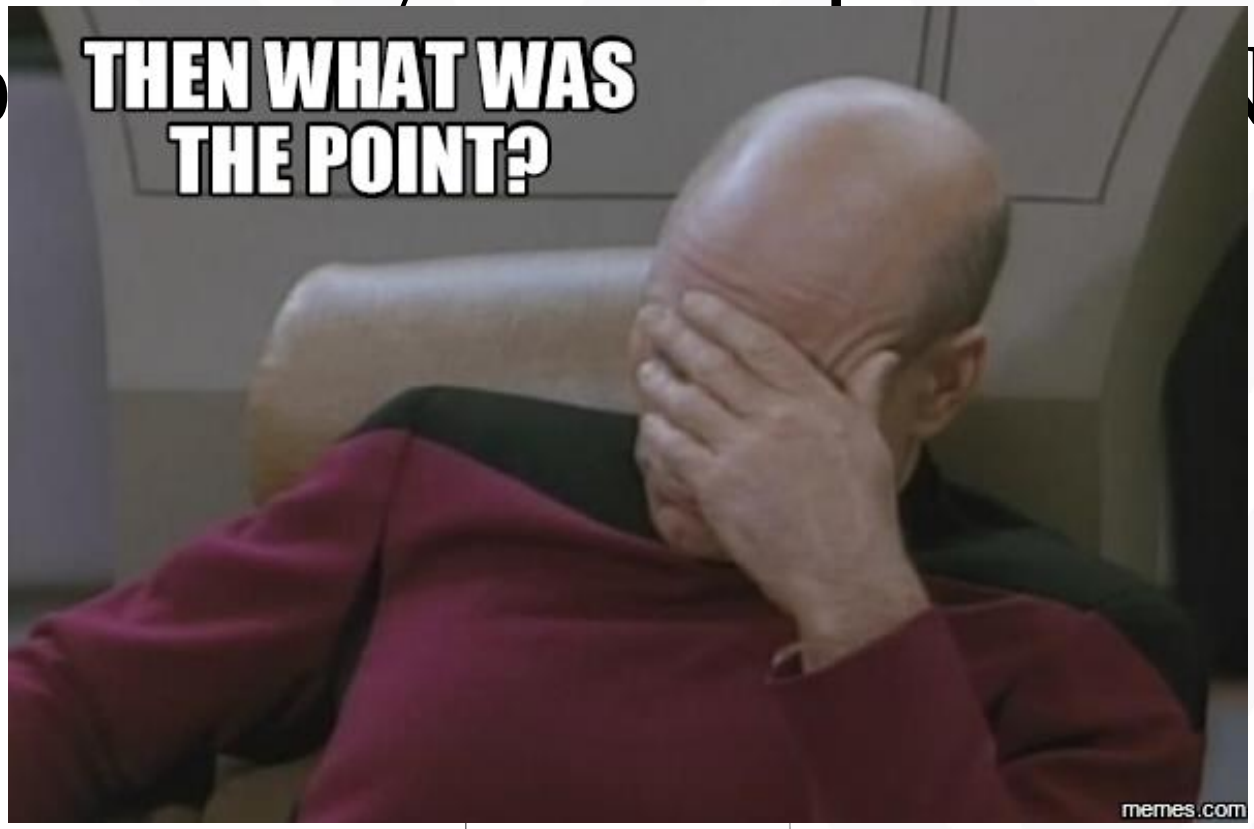
# Now that you're experts in the correlation coefficient, MANG should be ~~easy~~, right?


WELL DONE,
CAPTAIN
OBVIOUS
imgflip.com

# MANG 434 ISN'T EAS

# Now that you're experts in the correlation coefficient, MANG should be ~~easy~~, right?

Now that you're experts in the co NG



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WHAT IF I TOLD YOU
IT WILL GIVE YOU A COMPETITIVE ADVANATAGE
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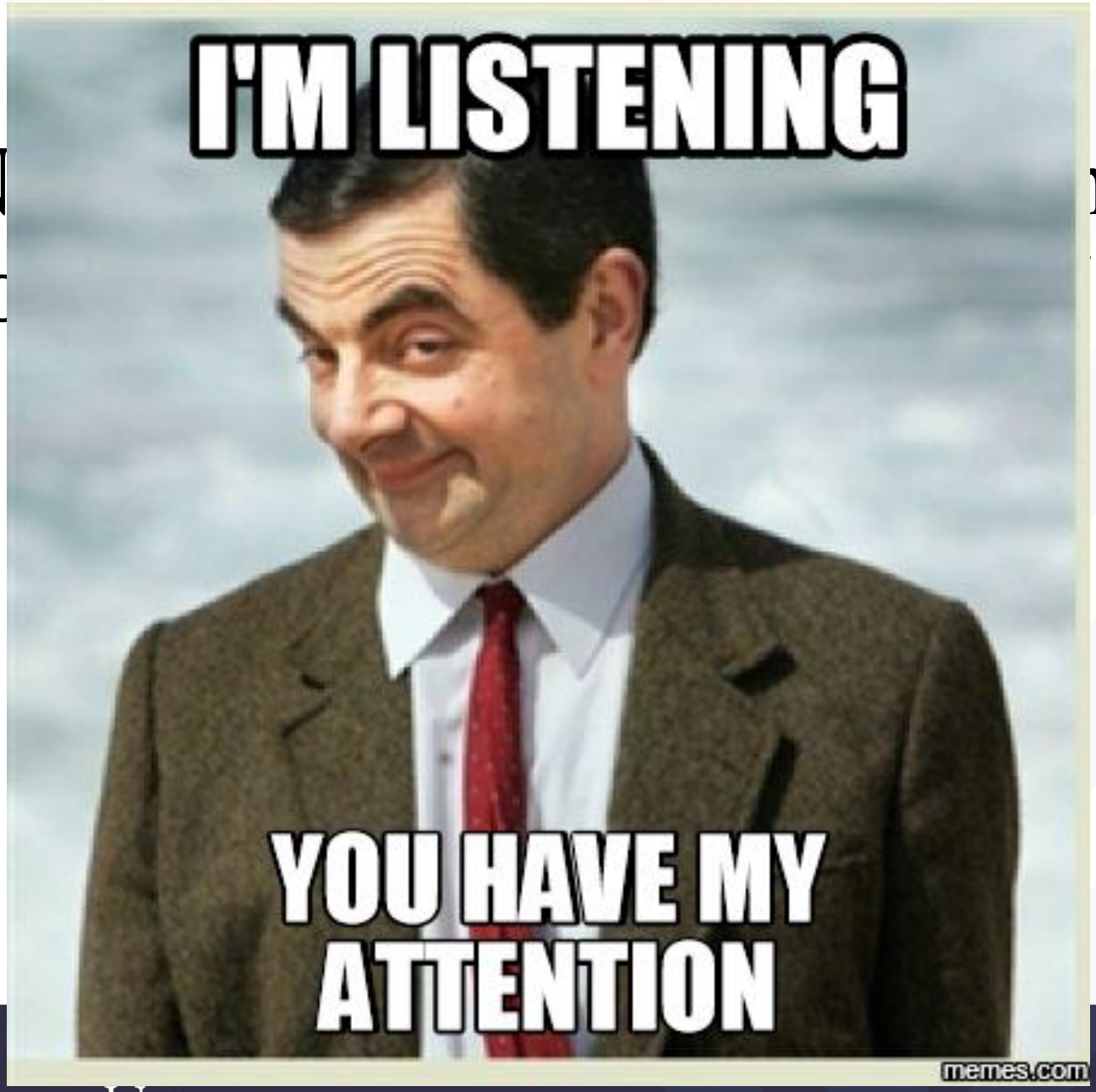

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# WELL, YOU JUST LEARNED HOW TO INTERPRET SCIENTIFIC FINDINGS

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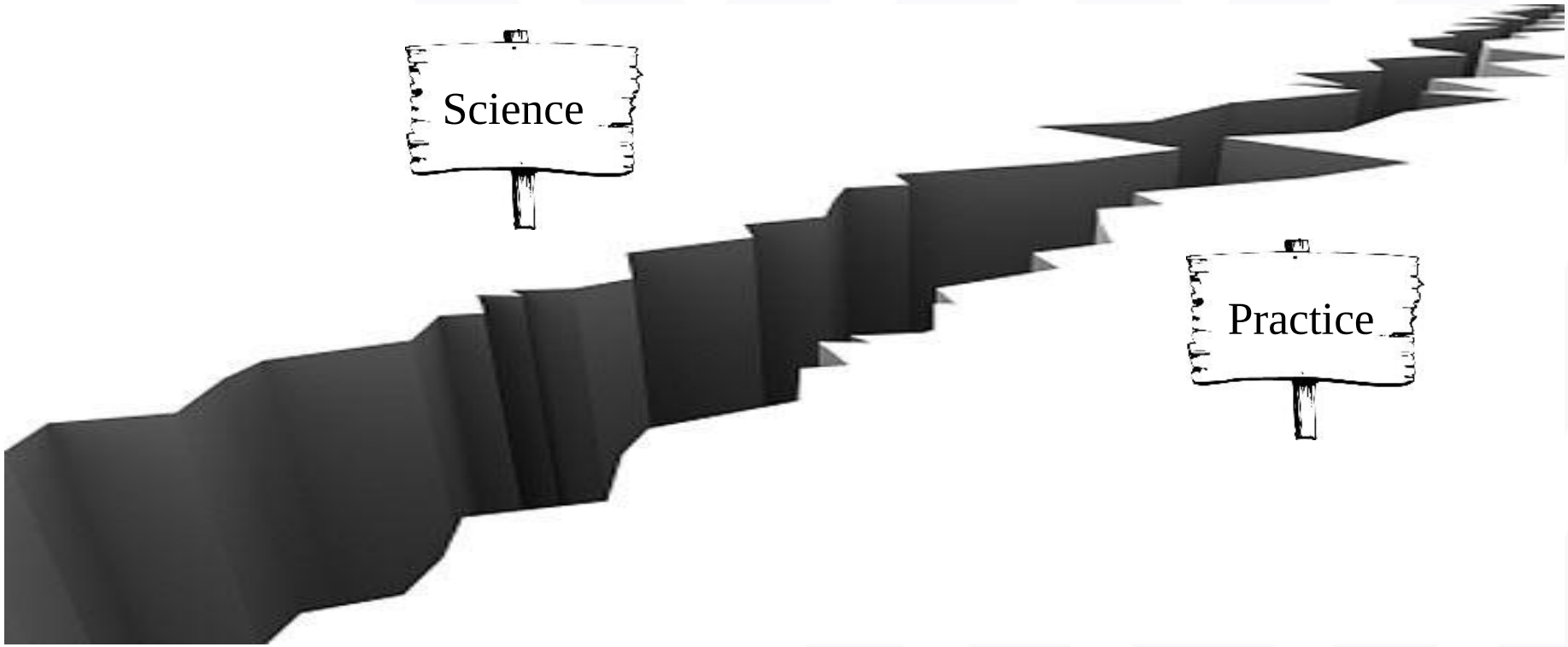
# HY NOT USE SCIENTIFIC EVIDENCE TO INFORM YOUR HRM DECISIONS?

WELL, YOU JUST LEARNED HOW TO INTERPRET SCIENTIFIC FINDINGS

WHY NOT USE SCIENTIFIC EVIDENCE TO INFORM YOUR HRM DECISIONS?

# THIS IS CALLED EVIDENCE-BASED PRACTICE

# EVIDENCE-BASED PRACTICE



# EVIDENCE-BASED PRACTICE