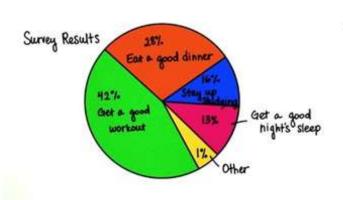
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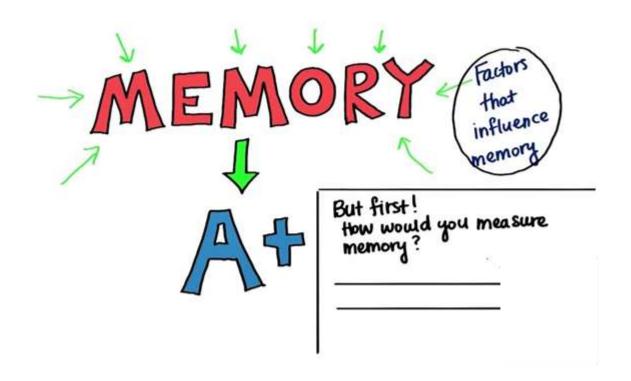


You have a big exam tomorrow and your memory needs to be as sharp as possible. What would you do to prepare?



What information would help you trust these survey results?

- How many people I surveyed
- □ Who I Surveyed
- How the survey was conducted



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Memory Test Description

Unfortunately the BBC no longer offers the face memory test!

Here is a brief description of how the test worked, to help you follow the rest of the lesson. The test consisted of three parts:

- 1. Users were shown 12 photos in the first part.
- 2. Users were shown another 12 photos in the second part.
- 3. Users were shown 48 photos in the third part and asked if they saw each photo in the first part, the second part, or neither.

After the test, users were given two scores:

- "Recognition score", calculated as the percentage of times they correctly identified whether they saw the face at all, regardless of which part the face was from.
- "Temporal memory score", calculated as the percentage of recognized faces that were identified with the correct part (part 1 or part 2).

Users were advised to take a 5 minute break between each part of the test.

How did BBC measure memory?

- o The types of faces you remember

 o the percent of faces correctly recognized

 and placed from parts I and II
- Knowing whether you saw the face first or second
 Knowing whether or not the face was there
 The number of faces you remember

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CONSTRUCTS
☐ Gallons of gasoline
☐ Intelligence
□ Effort
☐ Age ☐ Hunger
☐ Hunger
Annual Salary in USD
□ Itchiness

Can you match ear operational defin	ch construct (left) with a possible nition (right)?
Depression Hunger Stress Anger Happiness Health Health	A. Resting heart rate B. Levels of cortisol (the stress hormone) C. Minutes Spent studying for an exam D. Score on Beck's Depression Inventory E. Body mass index F. Number of products purchased per year from a particular brand G. Number of profanities uttered per min. H. Grams of food consumed I. Rotto of minutes spent Smiling to minutes not Smiling

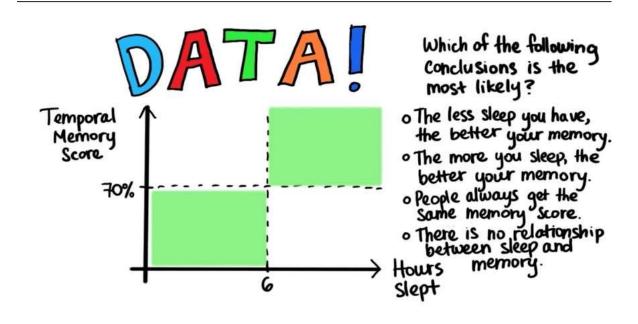
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Data

Sleep and Memory

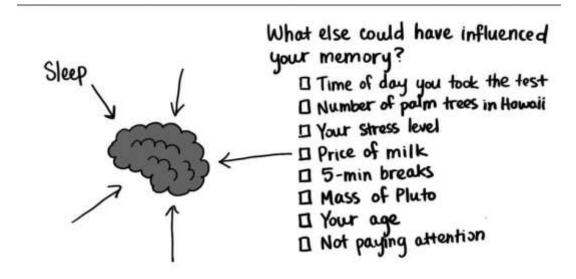
Hours Slept	Recognition Score	Temporal Score
7	91	86
6.5	95	78
5.5	88	68



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Lurking Variables



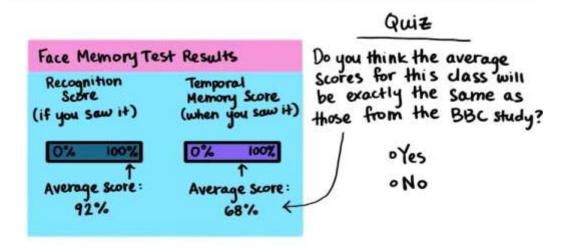
Control Variable



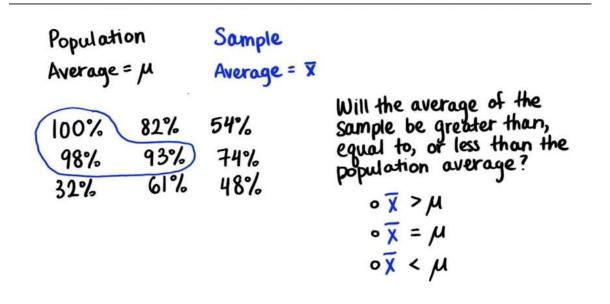
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Same Scores



SAMPLE AVERAGE



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Random Distribution

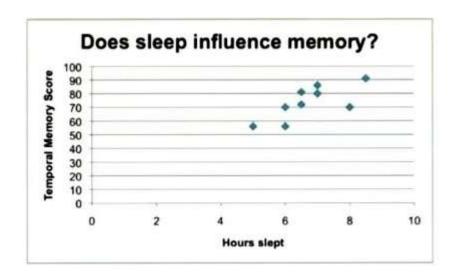
"Perhaps the best typical example that we can give of the scientific meaning of random distribution is afforded by the arrangement of the drops of rain in a shower. No one can give a guess whereabouts at any instant a drop will fall, but we know that if we put out a sheet of paper it will gradually become uniformly spotted over. And if we were to mark out any two equal areas on the paper, these would gradually tend to be struck equally often."

Visualize relationship

Howrs Slept	Temporal
7	86
8	70
6	56
5	56
6	70
7	80
6.5	72
8.5	91
6.5	81
7	86

Is there a relationship between these two variables?

Scatter Plot



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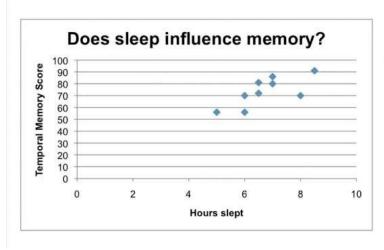


What can we say about the relationship between hours slept and temporal memory score?

The more you sleep, the better your temporal memory score
 The more you sleep, the better you'll do on a test

The more you sleep, the worse your memory
 There is no relationship

True or Not



Is it necessarily true that if you go to bed early, your memory will definitely be better tomorrow?

o Yes ONO

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Golden Arches Theory



Thomas Friedman:

No two countries with a McDonald's have ever gone to war since opening the

(Golden Arches Theory of Conflict Prevention)

o Citizens of countries with McDonald's are too unhealthy to go to war.

What do you think?

- This is completely plausible! McDonald's makes people happy and happy people don't go to war.
- o Countries with McDonald's spent too much of their money in opening McDonalds that they can't afford to go to war.

o Countries with McDonald's are open to globalization and foreign investments, and less inclined to go to war with other open countries.

Surveys



Survey

Ask people if their memory is better when they sleep more

What are some benefits of using surveys to conduct research?	\ \ 1	Education Longitudinal Study
I Easy way to get info on a population I Relatively inexpensive	, IUX	- V
a Conducted temptory	(7 1
Anyone can access & analyze	ı	
survey results	•	

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Survey

Ask people if their memory is better when they sleep more

What are some downsides to surveys? Education Longitudinal

1 Untruthful responses

1 Biased responses

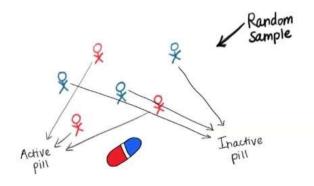
1 Respondents not understanding the guestions

1 Respondents refusing to answer

1 Respondents refusing to answer

1 Teachers Value school

Experiments

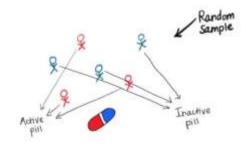


What's the purpose of the inactive pill?

- O To make sure there are no side effects of the active pill
 - O To have a comparison group to those who took the active pill
 - O To see if the inactive pill can help people sleep

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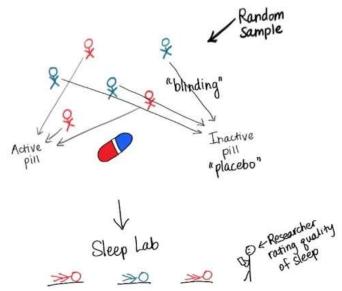




Why are participants not told which pill they received?

- O Because all good research includes deception
- They may not participate if they know they were receiving a drug.
- O To make them all believe they are receiving medication
- o they may not participate if they knew they weren't receiving a drug

Double Blind



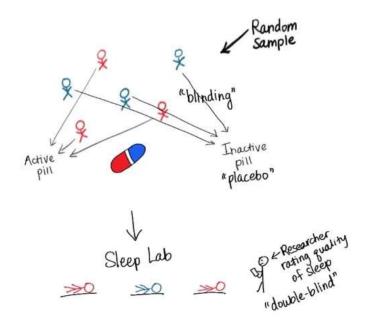
Should the researchers observing quality of sleep know which treatment participants received?

- OYes, because their ratings will depend on the treatment.
- O No, to help maintain participant confidentiality.
- O Yes, because the researchers ratings will be more accurate
- O No, because if they know, their judgements may be biased.

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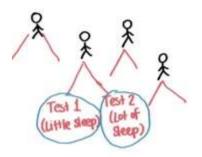


Controlled Factors



What factors ald this experiment control for?

- Time at which participants took the pill
- ☐ the place at which participants slept
- ☐ Gender
- ☐ Age
- ☐ What the pill looks like



If we did two memory tests on each person — one after sleeping a little, the other after sleeping a lot — and compared the results, what would we be controlling for?

- O Differences in memory capabilities due to gander
- o Differing amounts of sleep amongst Individuals
- o Variation in people's individual memory capabilities
- O Time of day at which subjects took the memory test

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Example of Observational Study

Height (in) vs. Hand length (in)

