

Be Psyched!

Learn and Design a Social Psychology Experiment

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What is your most recent experience of RESISTING something?



..or using your BRAIN power really hard?



“Willpower”

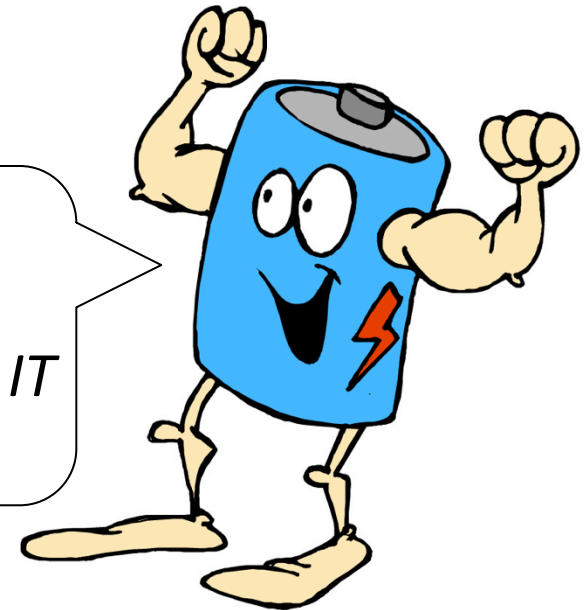
- What is willpower?
- What’s your BELIEF about it?

“After a hard “mental” work-out...”

*MY MENTAL ENERGY IS
DEPLETED AND I NEED TO
REST TO RECHARGE IT.*



*MY MENTAL ENERGY
RECHARGES ITSELF.
I CAN CONTINUE DOING IT
MORE.*



“After a hard “mental” work-out...”

MY MENTAL ENERGY IS
DEPLETED AND I NEED TO
REST TO RECHARGE IT.

Do these beliefs **MATTER?**



MY MENTAL ENERGY
RECHARGES ITSELF.
I CAN CONTINUE DOING IT
MORE.



Psychologists test such idea with a *Research Study*

Research Article



Ego Depletion—Is It All in Your Head? Implicit Theories About Willpower Affect Self-Regulation

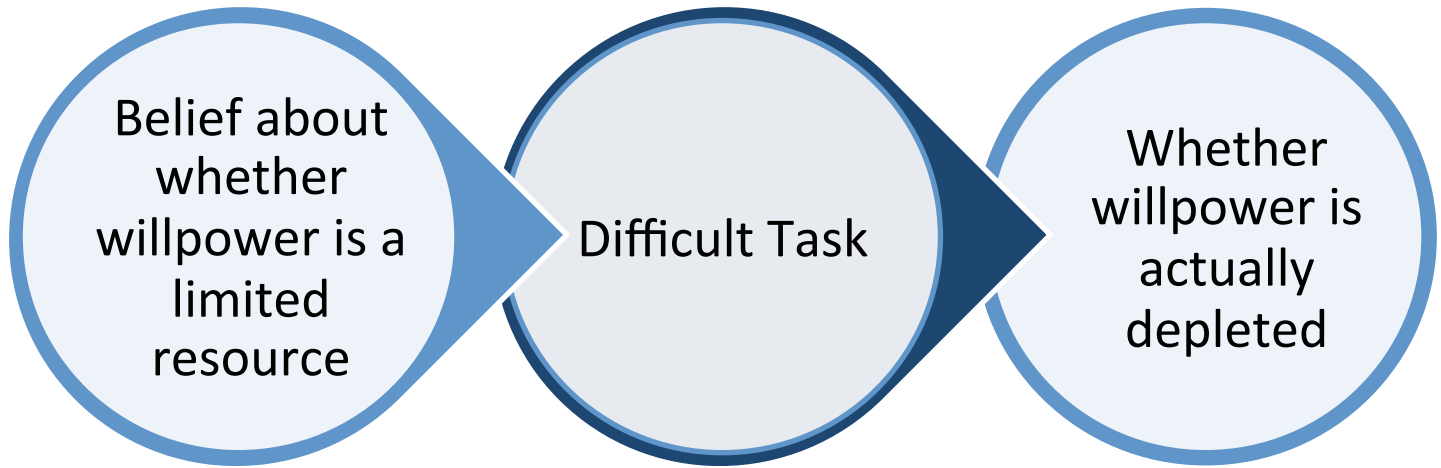
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The SAGE logo consists of a stylized 'S' inside a circle, followed by the word 'SAGE' in a bold, sans-serif font.

Veronika Job, Carol S. Dweck, and Gregory M. Walton

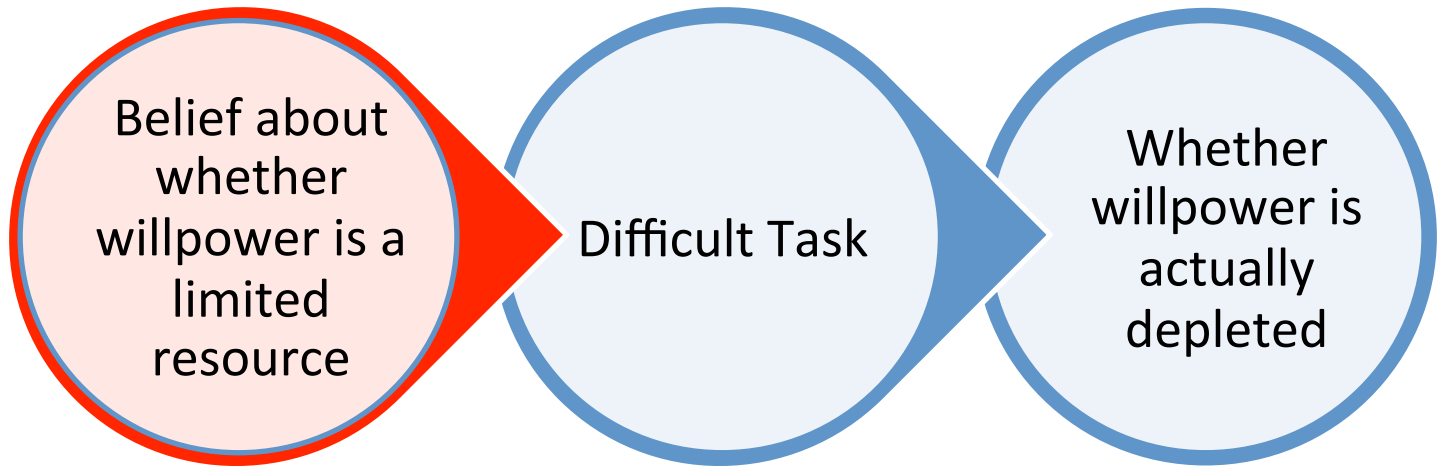
Stanford University

Abstract

Much recent research suggests that willpower—the capacity to exert self-control—is a limited resource that is depleted after exertion. We propose that whether depletion takes place or not depends on a person's belief about whether willpower is a limited resource. Study 1 found that individual differences in lay theories about willpower moderate ego-depletion effects: People who viewed the capacity for self-control as not limited did not show diminished self-control after a depleting experience. Study 2 replicated the effect, manipulating lay theories about willpower. Study 3 addressed questions about the mechanism underlying the effect. Study 4, a longitudinal field study, found that theories about willpower predict change in eating behavior, procrastination, and self-regulated goal striving in depleting circumstances. Taken together, the findings suggest that reduced self-control after a depleting task or during demanding periods may reflect people's beliefs about the availability of willpower rather than true resource depletion.



Let's consider each part of the research



What would you do to know what someone believes?

Measuring Belief about Self-Control

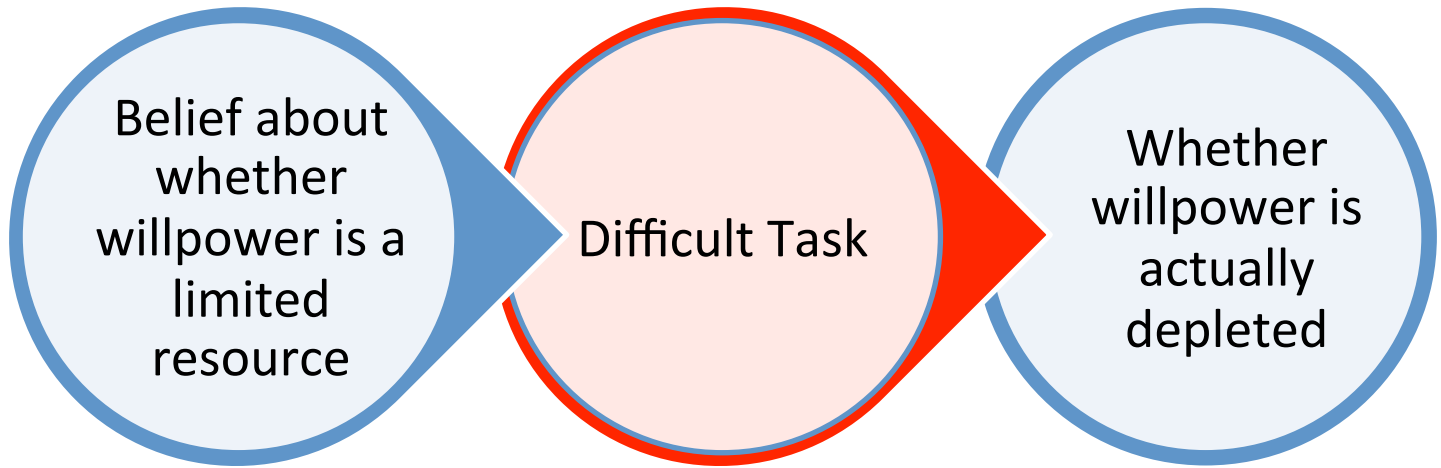
- Examples
 - “After a challenging mental activity, your energy is depleted and you must rest to get it refueled again”
 - “Your mental stamina fuels itself, even after a challenging mental exertion you can continue doing more of it”

Measuring Belief about Self-Control

- Examples
 - “After a challenging mental activity, your energy is depleted and you must rest to get it refueled again”
 - “Your mental stamina fuels itself, even after a challenging mental exertion you can continue doing more of it”
- How would you capture the responses?

Measuring Belief about Self-Control

- Examples
 - “After a challenging mental activity, your energy is depleted and you must rest to get it refueled again”
 - “Your mental stamina fuels itself, even after a challenging mental exertion you can continue doing more of it”
- How would you capture the responses?
6-point rating scale (1=strongly disagree; 6=strongly agree)



What a difficult task might look like?

Difficult Task

Crossing out each “e” (e.g., I r█ad a nov█l.)

vs.

Crossing out each “e” except when another vowel followed the “e” in the same word (e.g., I read a nov█l.)

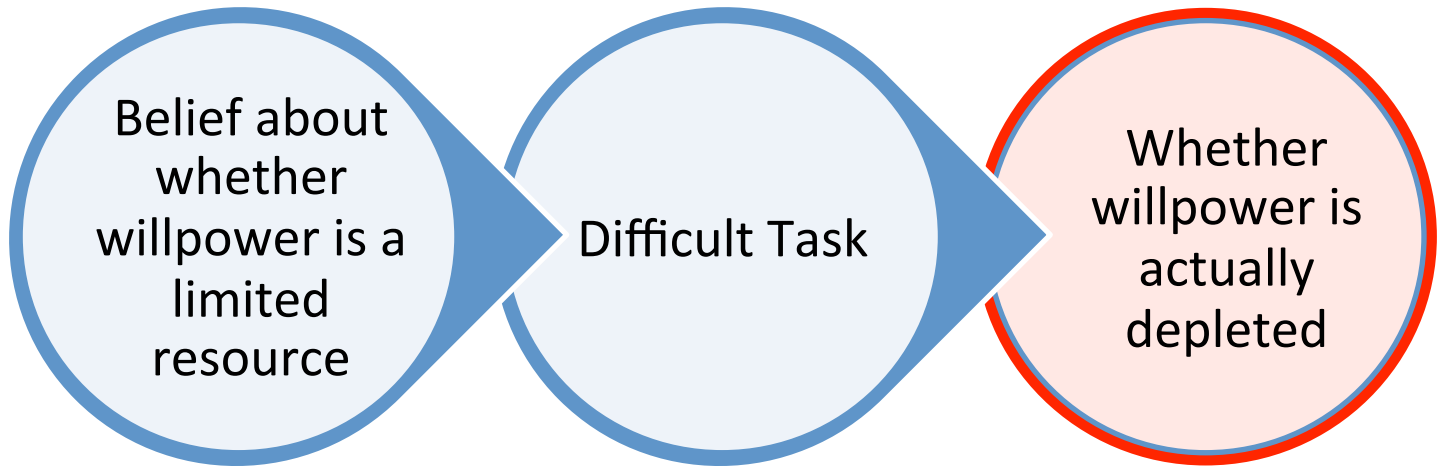
Difficult Task

Crossing out each “e” (e.g., I r█ad a nov█l.)

vs.

Crossing out each “e” except when another vowel followed the “e” in the same word (e.g., I read a nov█l.)

Ready to give it a try?



How would you measure that?

Measuring Self-Control

- Stroop Test
e.g., RED, GREY

Measuring Self-Control

- Stroop Test
e.g., RED, GREY

Let's give it a try!

YELLOW

BLUE

RED

GREEN

PURPLE

YELLOW

BLUE

RED

GREEN

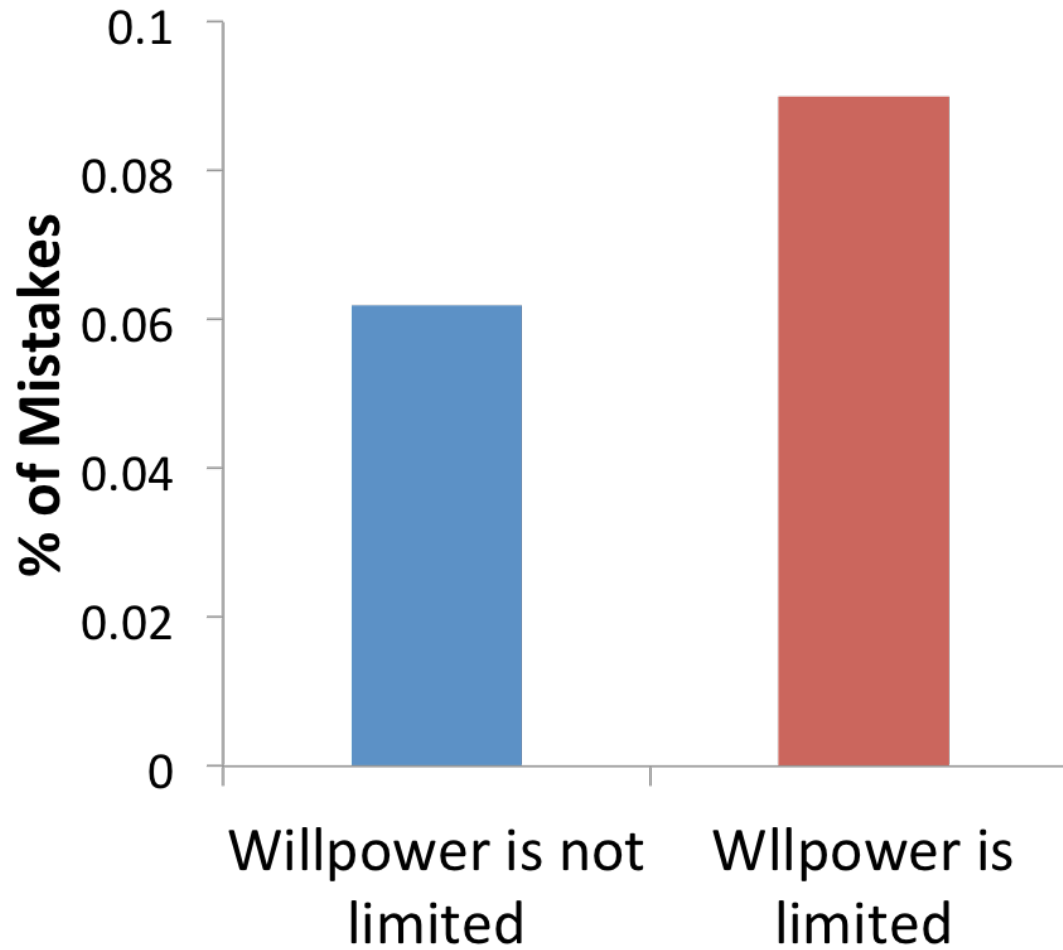
PURPLE

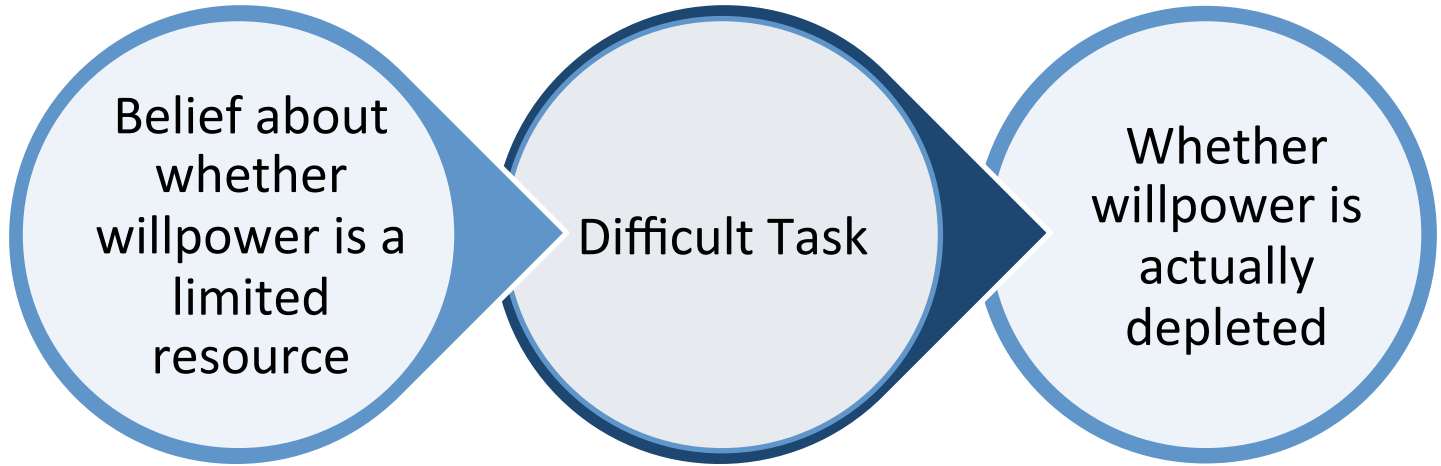
What's happening?

How would Stroop measure whether willpower has actually depleted?

Results

Results





What is research?

Crash Course! Research Design:

Let's unpack the research study

- How do we turn a question into a RESEARCH question?
- What are the building-blocks of a research study?
- How do we interpret and explain the results?

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Crash Course! Research Design

Turn your questions into HYPOTHESIS

When do I crave donuts the most?



Crash Course! Research Design

Turn your questions into HYPOTHESIS

Maybe when I see
coffee... (Seeing
coffee makes me
crave donuts)



Crash Course! Research Design

Turn your questions into HYPOTHESIS

I predict that after seeing coffee, I will eat more donuts than after seeing water.



Crash Course! Research Design

Turn your questions into HYPOTHESIS

- Step 1: Ask **questions**.
- Step 2: Build a **theory**.
- Step 3: Devise a “**testable hypothesis**”.

Crash Course! Research Design

Turn your questions into HYPOTHESIS

- **Question:**

“When do I crave donuts the most?”

- **Theory:**

“Seeing coffee makes me crave donuts.”

- **Hypothesis:**

“I predict that after seeing coffee, I will eat more donuts than after seeing water.”



Crash Course! Research Design

Turn your questions into HYPOTHESIS

Exercise!

Take the next 5 minutes coming up with

1) **a psychological question**

..and turn that into

2) **a psychological theory**

..and finally turn that into

3) **a testable hypothesis.**

Crash Course! Research Design:

Let's unpack the research study

- How do we turn a question into a RESEARCH question?
- **What are the building-blocks of a research study?**
- How do we interpret and explain the results?

Crash Course! Research Design

Building Blocks of a Study: IVs and DVs

- **Independent Variables (IVs):**

The factors experimenters *manipulate* to see if they affect the dependent variable (presumed cause).

- **Dependent Variables (DV):**

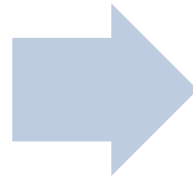
The factors experimenters *measure* to see if they are affected by the independent variable (presumed effect).

Crash Course! Research Design

Building Blocks of a Study: IVs and DVs

IV

Seeing Coffee
(or not)



DV

Craving for Donuts

Crash Course! Research Design

Building Blocks of a Study: IVs and DVs

IV

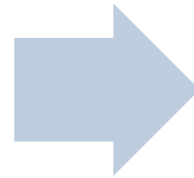
DV

Seeing Coffee
(or not)

Craving for Donuts

Manipulate

Serving coffee/water



Crash Course! Research Design

Building Blocks of a Study: IVs and DVs

IV

DV

Seeing Coffee
(or not)

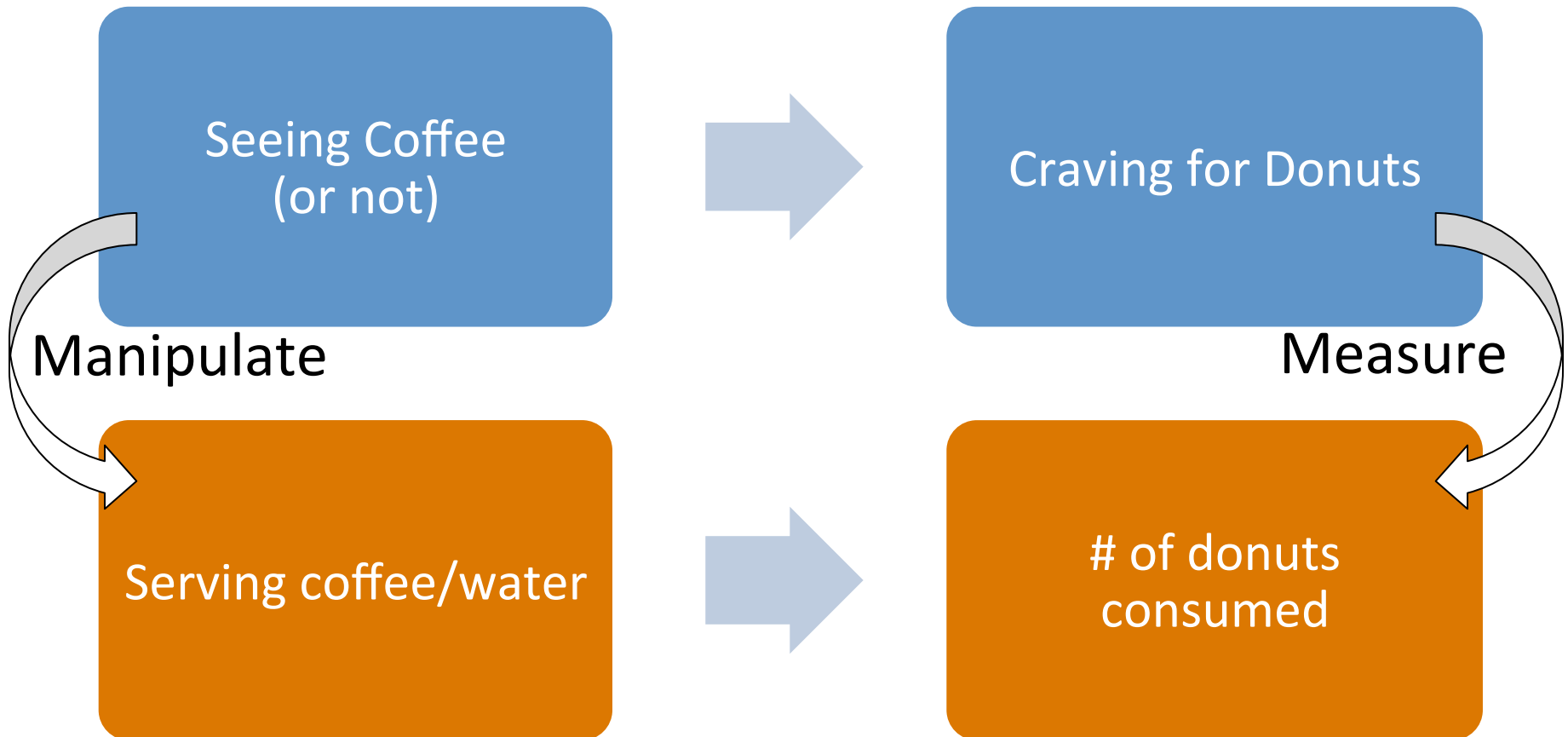
Craving for Donuts

Manipulate

Measure

Serving coffee/water

of donuts
consumed

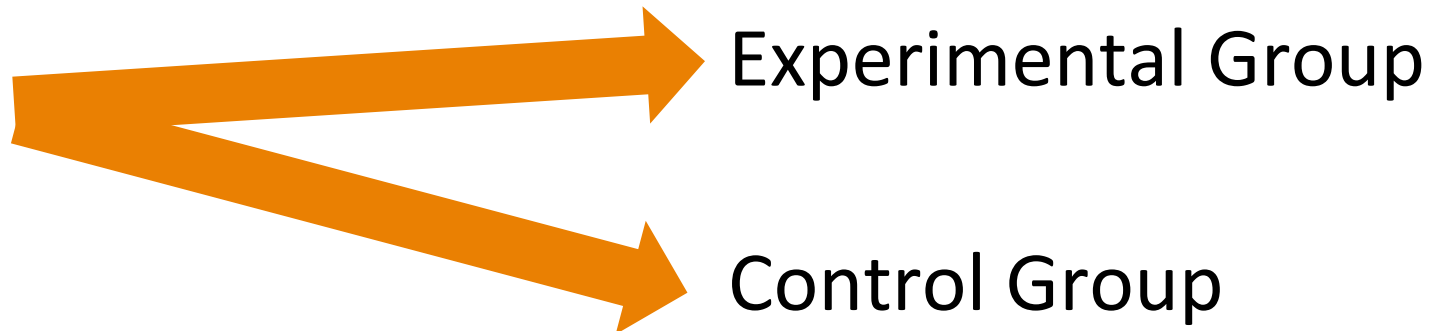


Crash Course! Research Design

Building Blocks of a Study: IVs and DVs

Experimental vs. Control Groups

- We need a “comparison group” to determine if the manipulation was effective.



Crash Course! Research Design

Building Blocks of a Study: IVs and DVs

Experimental vs. Control Groups

- We need a “comparison group” to determine if the manipulation was effective.



Crash Course! Research Design

Building Blocks of a Study: IVs and DVs

Experimental vs. Control Groups

- We need a “comparison group” to determine if the manipulation was effective.
- We should “randomly assign” participants into different groups.



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Building Blocks of a Study: IVs and DVs

Coming up with a study “Procedure”

- Your study should have a good “cover story” that prevents participants from guessing what you are testing.

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Building Blocks of a Study: IVs and DVs

Coming up with a study “Procedure”

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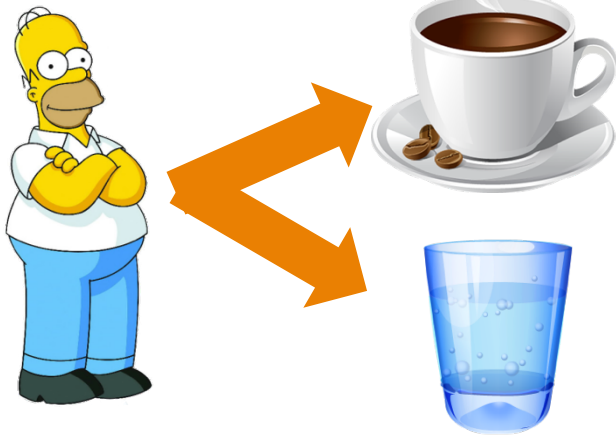


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Building Blocks of a Study: IVs and DVs

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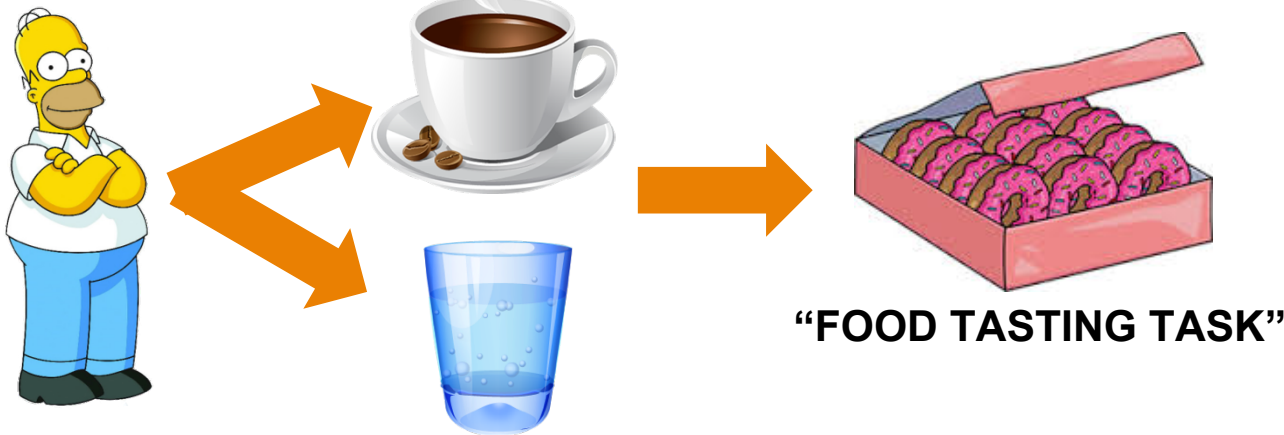


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Building Blocks of a Study: IVs and DVs

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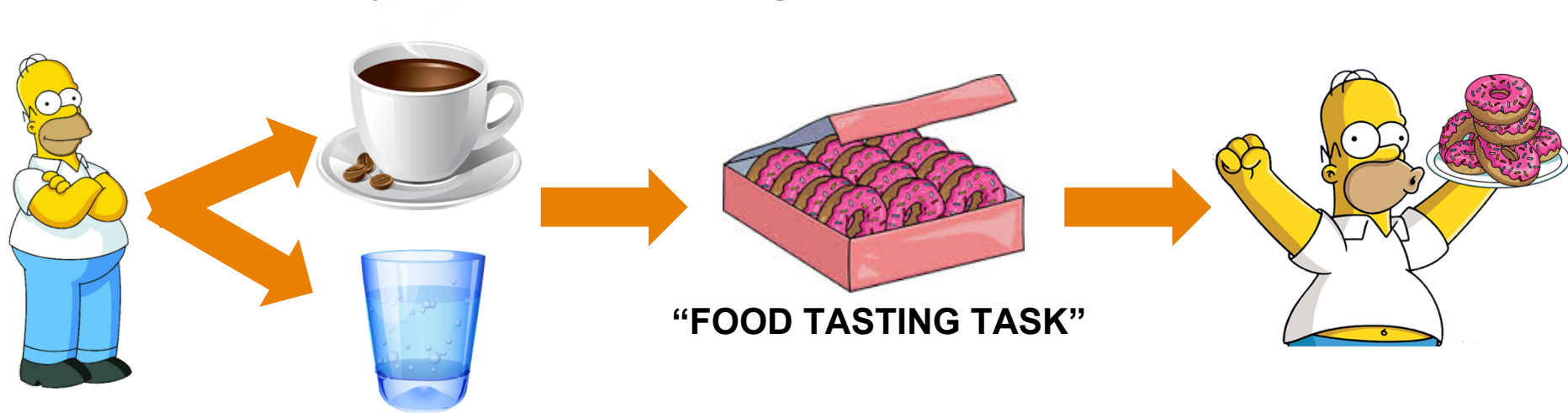


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Building Blocks of a Study: IVs and DVs

Coming up with a study “Procedure”

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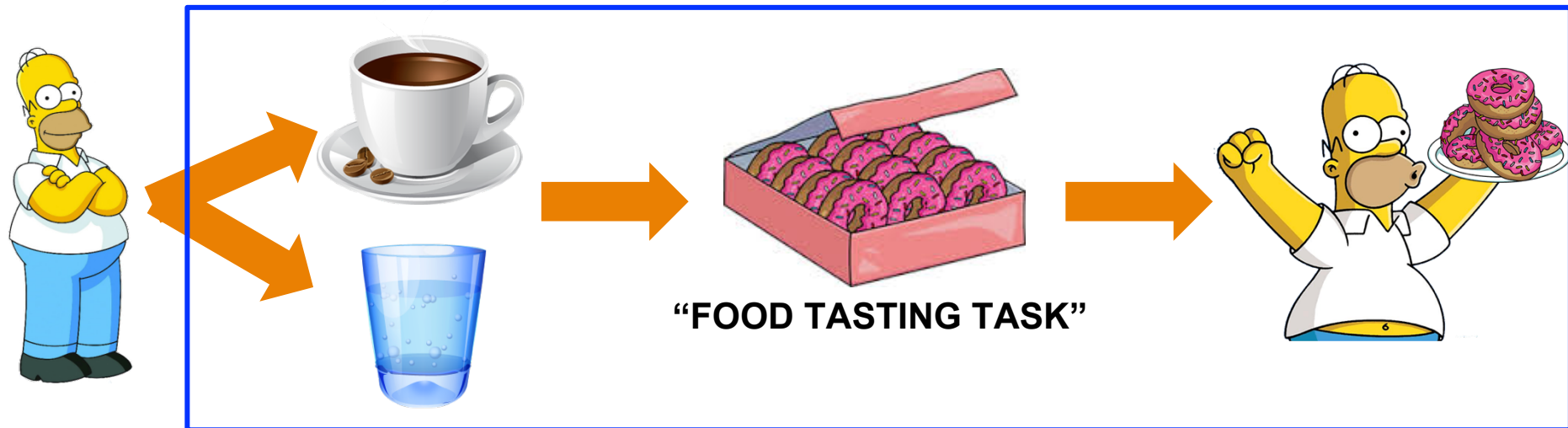


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Building Blocks of a Study: IVs and DVs

Coming up with a study “Procedure”

- Your study should have a good “cover story” that prevents participants from guessing what you are testing.



Study Procedure

Crash Course! Research Design

Building Blocks of a Study: IVs and DVs

Exercise!

Take the next 5 minutes identifying an IV and DV in a given research scenario.

Crash Course! Research Design:

Let's unpack the research study

- How do we turn a question into a RESEARCH question?
- What are the building-blocks of a research study?
- **How do we interpret and explain the results?**

Crash Course! Research Design

Visualizing the Results

- It is important to be able to present your results visually.
- What is the best way to present your data?

Crash Course! Research Design

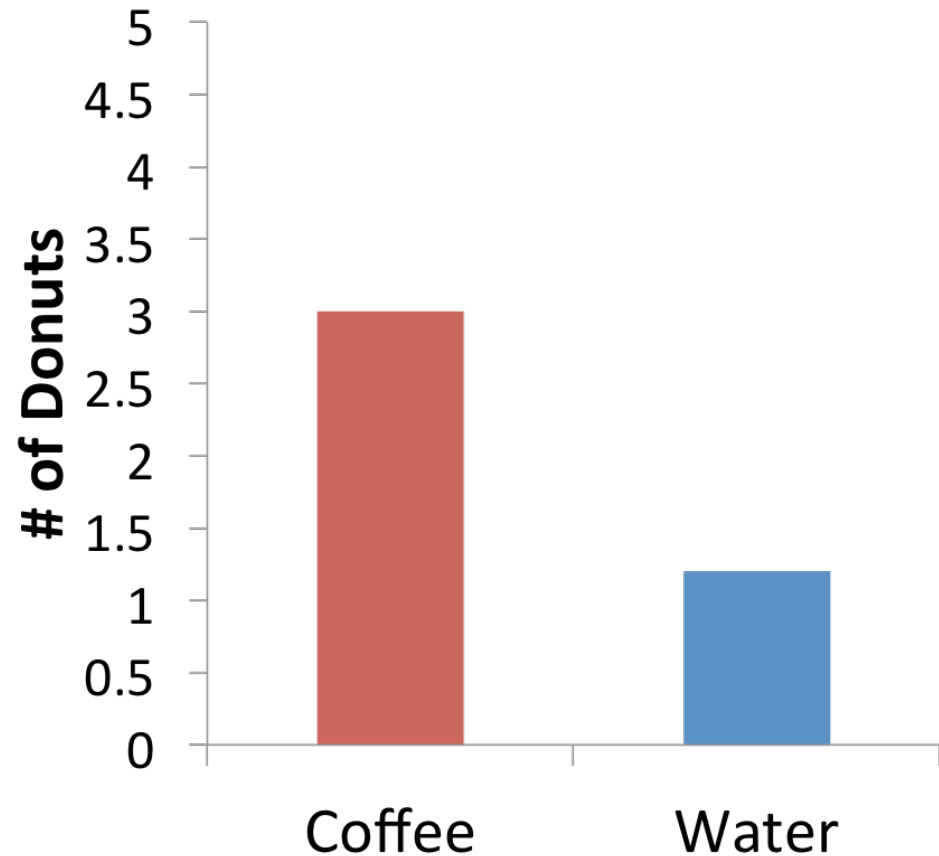
Visualizing the Results

	# of Donuts Eaten
Coffee Condition	3.0
Water Condition	1.2

Crash Course! Research Design

Visualizing the Results

	# of Donuts Eaten
Coffee Condition	3.0
Water Condition	1.2



Crash Course! Research Design

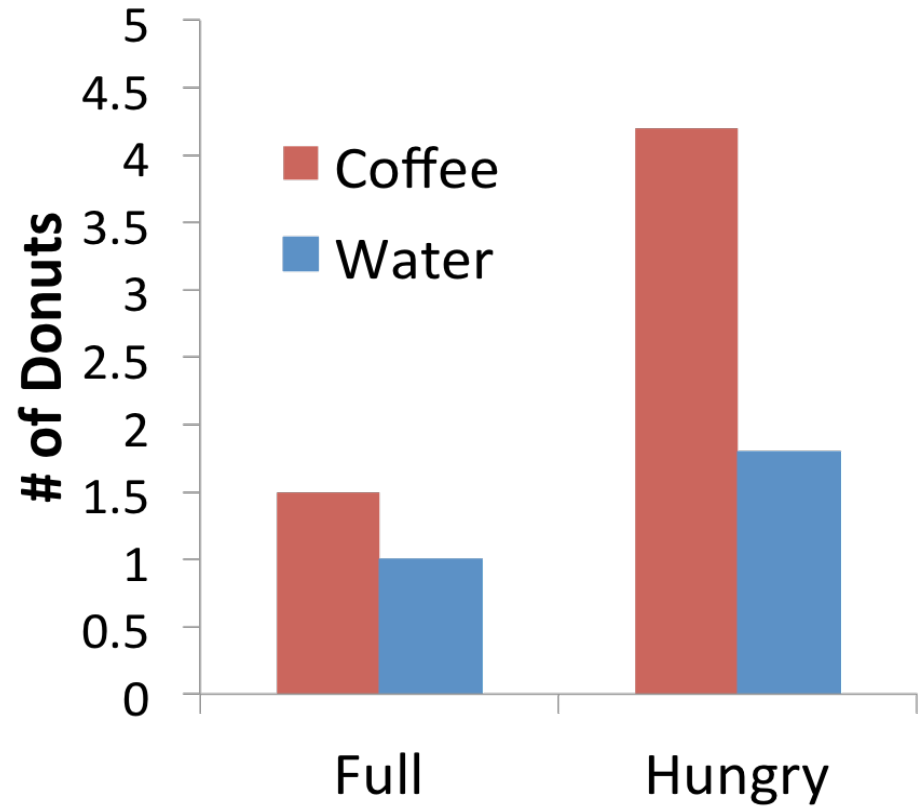
Visualizing the Results

	Full	Hungry
Coffee Condition	1.5	4.2
Water Condition	1.0	1.8

Crash Course! Research Design

Visualizing the Results

	Full	Hungry
Coffee Condition	1.5	4.2
Water Condition	1.0	1.8



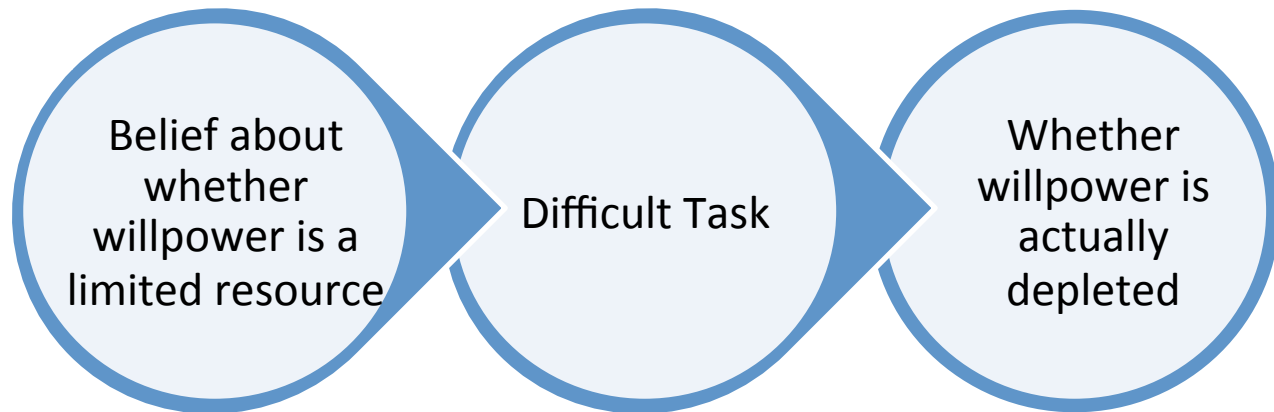
Crash Course! Research Design

Visualizing the Results

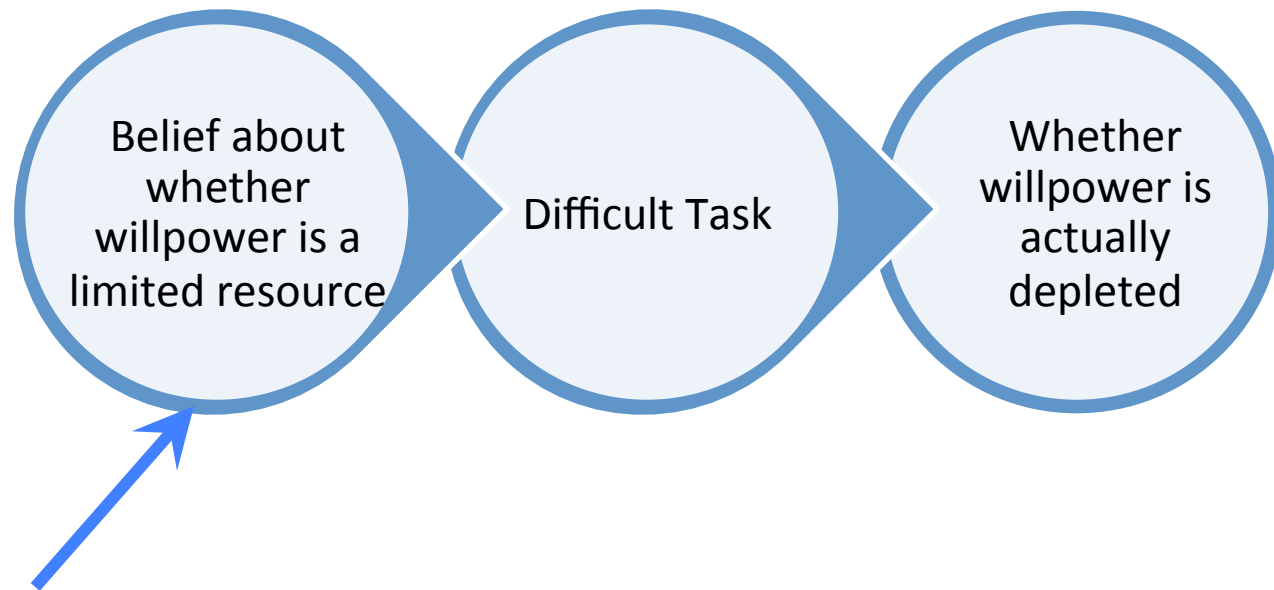
Exercise!

Go back to your study from Exercise 2, draw a graph that presents the results (you don't need exact numbers).

Remember the willpower study?



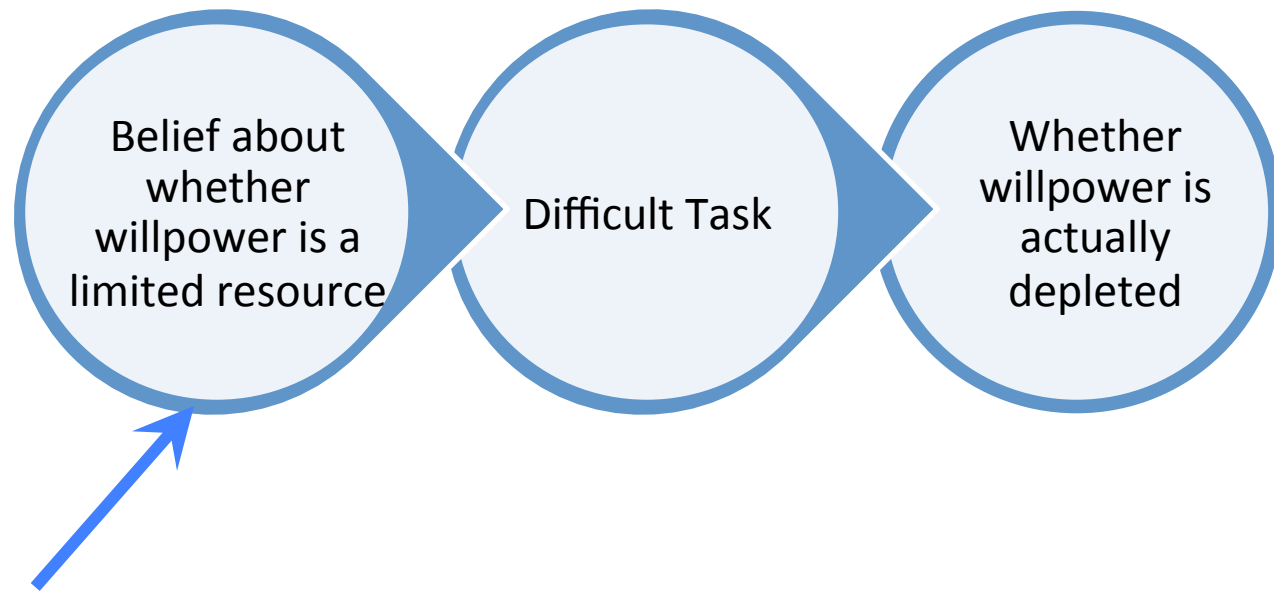
Can we CHANGE people's belief about willpower?



How can we
MANIPULATE this?

Can we CHANGE people's belief about willpower?

IV

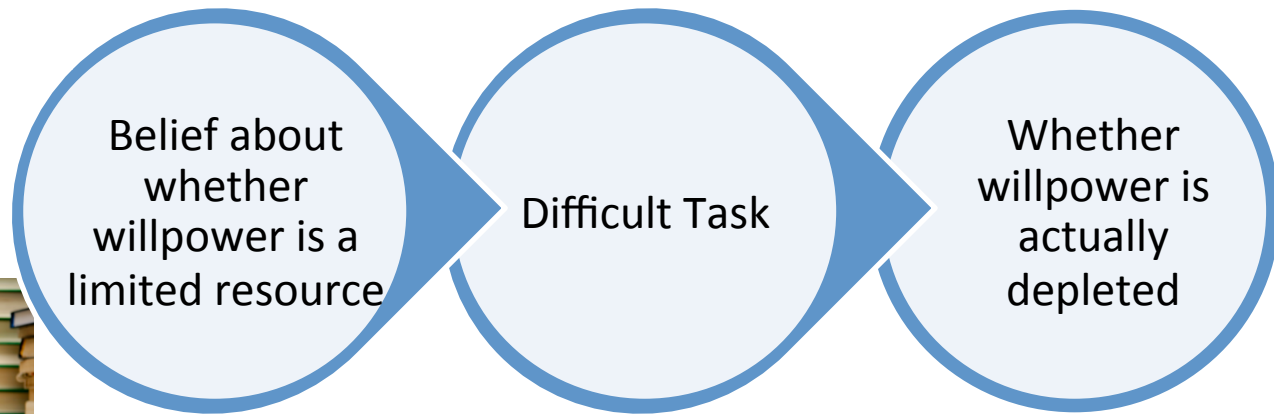


How can we
MANIPULATE this?

Can we CHANGE people's belief about willpower?



IV



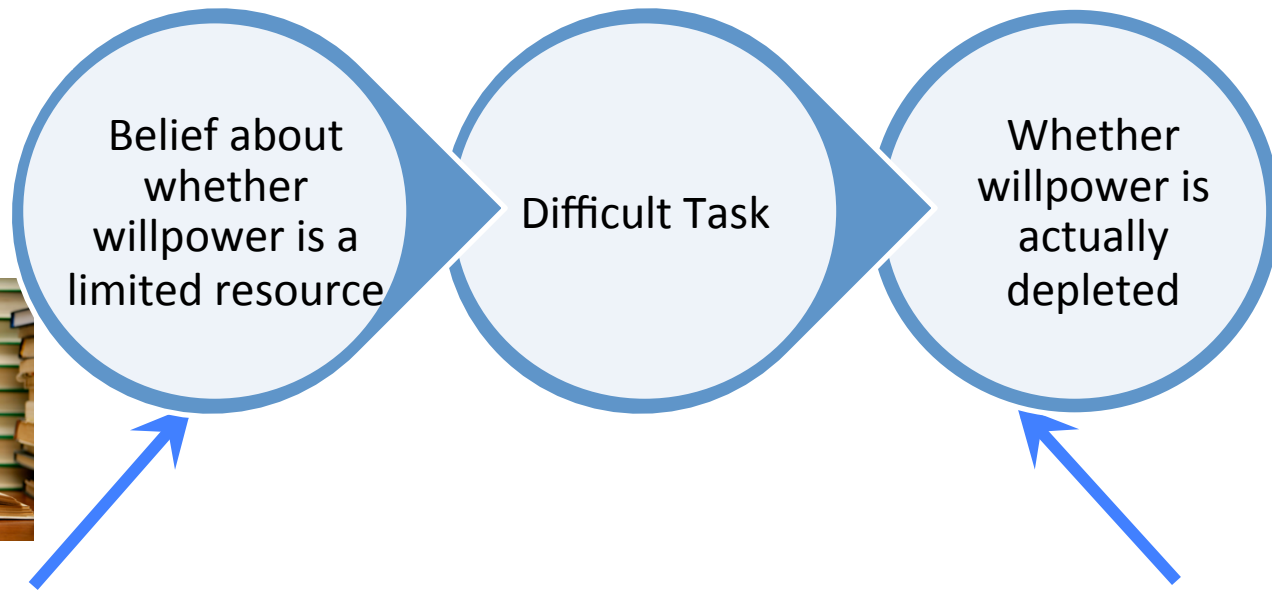
How can we
MANIPULATE this?

Can we CHANGE people's belief about willpower?



IV

DV



How can we
MANIPULATE this?

How can we
MEASURE this?

Can we CHANGE people's belief about willpower?



IV

DV



Belief about whether willpower is a limited resource

Difficult Task

Whether willpower is actually depleted



How can we
MANIPULATE this?

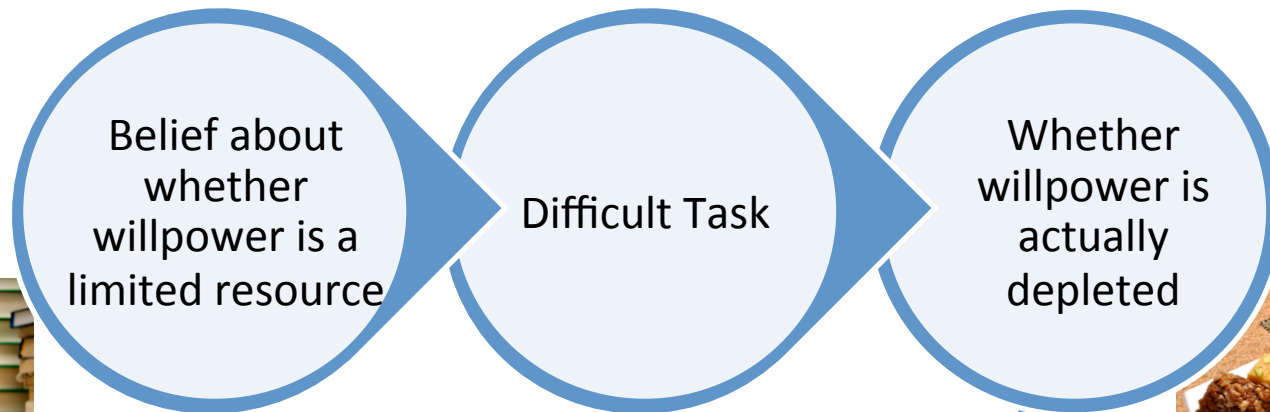
How can we
MEASURE this?

Can we CHANGE people's belief about willpower?



IV

DV



How can we
MANIPULATE this?

How can we
MEASURE this?

What do you predict?

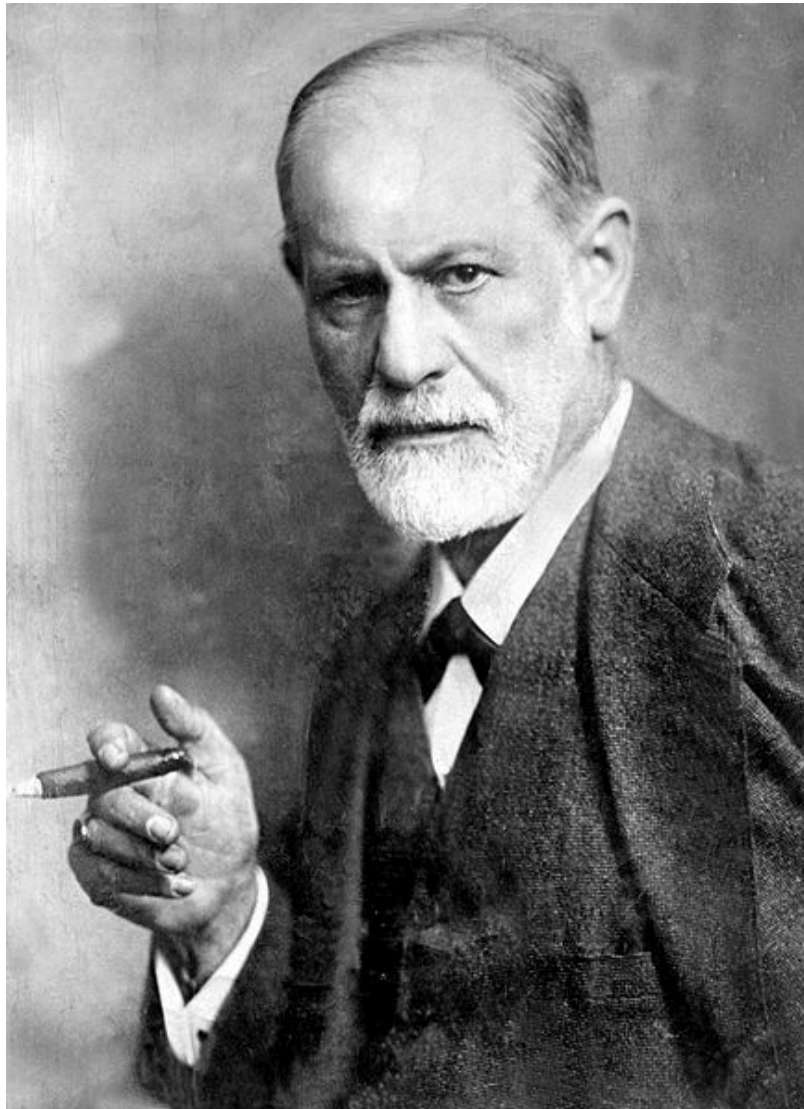
Present Your Study Design

- As an audience...
 - “*I like...*”: notice what is great about their design.
 - “*I wish...*”: think about how the design could be improved.
 - Ask questions at the end!

Wrapping up...

- What did you learn about “willpower”?
- What did you learn about research process?
- What was most difficult about designing a research?
- What kinds of questions would you like to explore in the future?

You are already a social psychologist!



*Go out,
and explore!*