Scrambled Sentence Task

Data Management, Day 1, Task A

A2. [Mathematical Thinking and Making Connections] make connections between mathematics and various knowledge systems, their lived experiences, and various real-life applications of mathematics, including careers

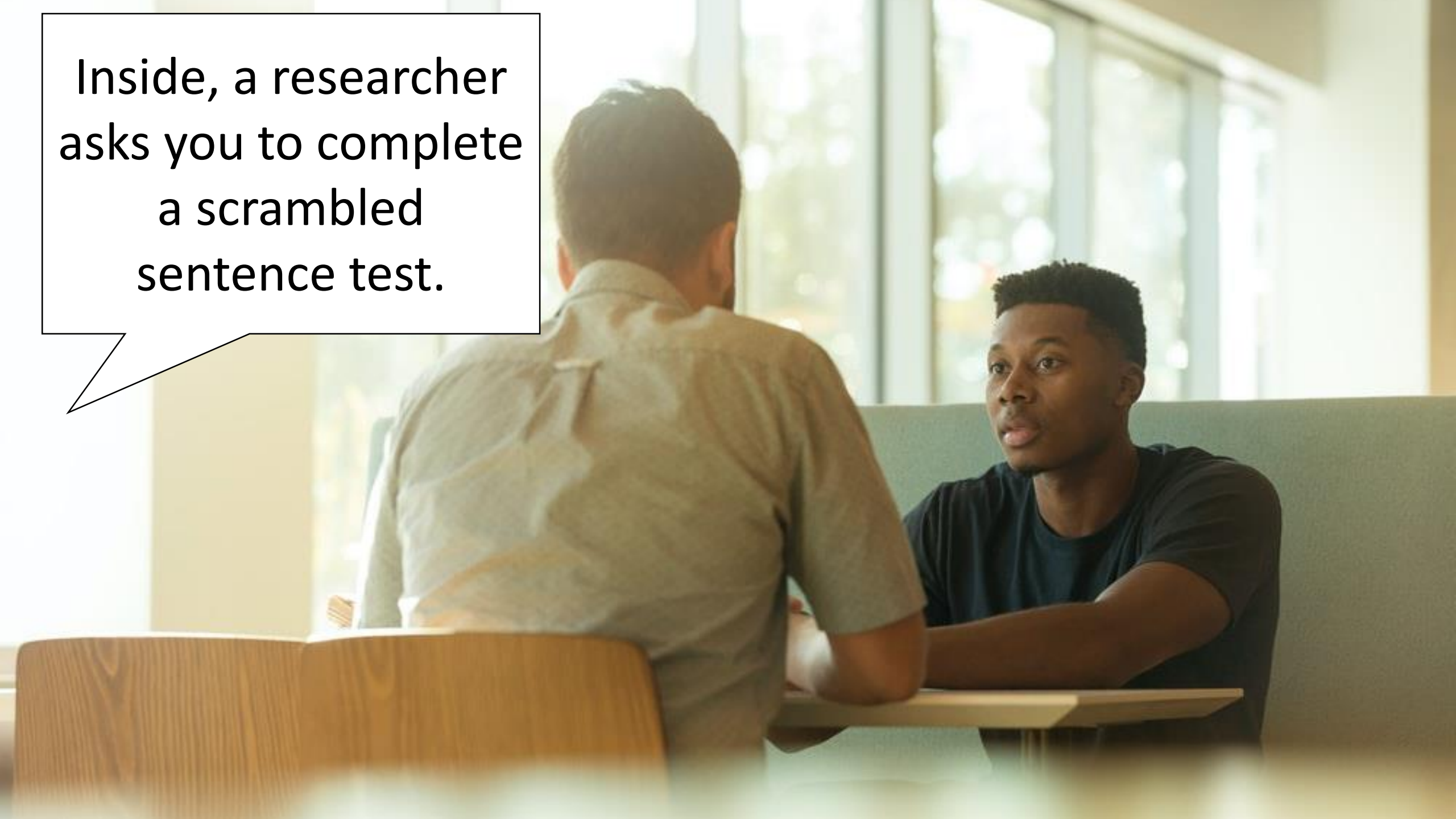
D2.1 [Application of Mathematical Modelling] describe the value of mathematical modelling and how it is used in real life to inform decisions

Develop a system to prepare for D1.2, 1.3 [Representation and Analysis of Data] D2.1, 2.2 [Application of Mathematical Modelling] and D2.3, 2.4, 2.5 [Process of Mathematical Modelling]


After reading an ad for volunteers, you have signed up to be part of a psychology experiment at a local university.


You arrive at the appointed time, and find your way to the correct room.


You take a seat in the waiting area, and when you are called you stand up and enter the room.


Inside, a researcher asks you to complete a scrambled sentence test.

breathe scales dragons fire can

In this task, you will get a set of 5 words.

Make a grammatical 4 word sentence as quickly as possible from each set.

The researcher will wait in the hall. When you are done, bring your sentences to them.

breathe scales dragons fire can

What 4 word sentence can you make from these words?

Dragons can breathe fire.

Group Member 1

Figure out how to time one of your group members completing this task. Then do it.

01 him was worried she always
02 from Florida oranges temperature
03 ball the throw toss silently
04 shoes give replace old the
05 he observes occasionally people watches
06 be will sweat lonely they
07 sky the seamless gray is
08 should now withdraw forgetful we
09 us bingo sing play let
10 sunlight makes temperature wrinkle raisins

Group Member 2

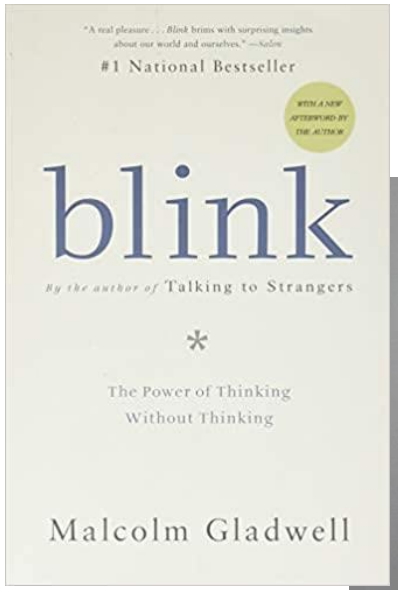
01 circles silver in she twirled
02 door grandmother the sunlight opened
03 pictures they landscape thinner painted
04 shines hair gray brush her
05 lies nap dog my down
06 jam carefully jars white open
07 twice cake read recipes
08 mashed deliberate gluten-free potatoes are
09 dishes now dried slowly she
10 enjoy listen retired music people

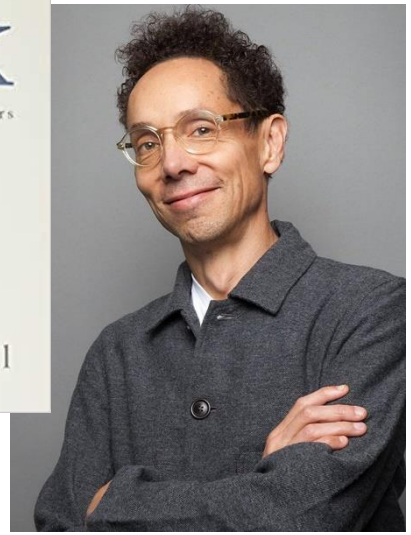
Group Member 3

01 steady me he for waited
02 late road detours make drivers
03 sleeps often dog bowl the
04 stairs the entrance museum had
05 wood old slightly houses lean
06 be smell can dusty antiques
07 past elephants the gentle remember
08 pages covers aged crack book
09 success numbers declining chart mean
10 kernels peck spring chickens corn

How did you do?

"Seemed straightforward, right? Actually it wasn't. After you finished that test – believe it or not – you would have walked out of my office and back down the hall more slowly that you walked in. With that test, I affected the way you behaved." Gladwell, Blink, 53





Gladwell has a Jamaican mother, British father. He is mixed race.
Grew up in Waterloo. Lives in New York, remains a Canadian citizen.
In highschool, he was an OFSAA champion long-distance runner.
He has a net worth of $30 million which he made writing books like this one.

How? Look back at the test.

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How? Look back at the list.

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"Scattered throughout it are certain words such as "worried", "Florida", "old", "lonely", "gray", "bingo", and "wrinkle". You thought that I was just making you take a language test. But, in fact, what I was doing was making the big computer in your brain – your adaptive unconscious – think about the state of being old. It didn't inform the rest of your brain about its sudden obsession. But it took all this talk of old age so seriously that by the time you finished and walked down the corridor, you acted old. You walked slowly." Gladwell, Blink 53.

This effect is called “Priming”

It is possible to use subtle clues and words to influence someone subconsciously.

Priming is used all of the time in advertising and political speeches. Teachers, officials and others can use it too to influence people.

Helpfully, if you know about it and look for it, it doesn't work!

But how does this relate to math?

There are 5 phases to a math-based study like this one.

Look at Task 1A, Part 2.

The task names and the tasks themselves are out of order. Order and match them.

I hid this task later in the package.

If you finish early, try to find the variables in Task 1B

There are 5 phases to a math-based study like this one.

1 - Problem

2 - Plan

3 - Data

4 - Analysis

5 - Conclusion

There are 5 phases to a math-based study like this one.

1 - Problem

How does priming with words associated with old age affect the speed at which you walk?

2 - Plan

3 - Data

4 - Analysis

5 - Conclusion

There are 5 phases to a math-based study like this one.

1 - Problem

How does priming with words associated with old age affect the speed at which you walk?

Variables: Entrance speed, Exit speed
Primed with Old Age Words or Isn't

2 - Plan

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Variables: Entrance speed, Exit speed
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2 - Plan

Advertise to local people via social media ads.
When people arrive, randomly assign them be primed with old age words or not.
Time their entrance into the room and their exit from the room.

3 - Data

4 - Analysis

5 - Conclusion

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For 52 participants, repeat the study and collect data.

4 - Analysis

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Divide the data into two groups: Primed with old age words or not. Calculate the difference between entry and exit speeds. Average the difference for both groups.

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On average, the group who was primed with old age words walked more slowly down the hall to hand in their answers than those who weren't.

Subconscious priming can impact walking speed.

Just curious – but did any groups have the result where the times got slower and slower?

The priming to go slower might have impacted you depending on how you set up your timing.

If you were listening to the previous sentences instead of focusing on the clock, for instance.

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In one study, the two groups were primed with either “politeness” or “aggressive” words

Participants had to hand in their paper to the researcher who was “just happened” to be talking to someone in the hall.

The experiment was to see how long it took for the participants to interrupt the conversation and to hand in their paper.

The five phrases in this study look like this.

1 - Problem

How does priming with “rudeness” or “politeness” affect the time it takes you to interrupt?

Variables: Time it takes to interrupt conversation
Primed with Rudeness or Politeness

2 - Plan

Advertise to local people via social media ads.
When people arrive, randomly assign them be primed with rudeness or politeness words.
Time how long it takes them to interrupt a fake conversation between two researchers.
Cut off experiment at 10 minutes.

3 - Data

For 100 participants, repeat the study and collect data.

4 - Analysis

Divide the data into two groups: Primed with rudeness or politeness. Average the interruption time for each groups.

5 - Conclusion

What do you think the results were?

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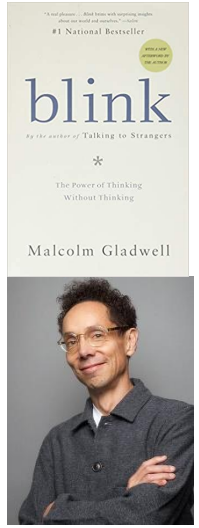
On average, those primed to be rude interrupted after about 5 minutes. Of the people primed to be polite, 82% never interrupted at all.

“The experiment was right down the hall from my office,” John Bargh from NYU remembers. “I had to listen to the same conversation over and over again. Every hour, whenever there was a new subject. It was boring, *boring*. The people would come down the hallway, and they would see the confederate who the experimenter was talking to through the doorway. And the confederate would be going on and on about how she didn’t understand what she was supposed to do. She kept asking and asking, for ten minutes, ‘Where do I mark this? I don’t get it.’ ” Bargh winced at the memory and the strangeness of it all. “For the whole semester this was going on. And the people who had done the polite test *just stood there*.” If the experiment hadn’t ended after ten minutes, who knows how long they would have stood in the hallway, a polite and patient smile on their faces?



Gladwell, Blink, 55