ReSCIND Performer HSR Dataset
Cover Sheet

Dataset Details

Dataset Title:	CASPAR Stage 1 HSR, Bronze Tier Surveys (Canonical Methods)
Dataset Citation:	See "Publications" section below.

Data Format:	Text files (CSV, XML)	Data Size:	< 1 MB
Dates & Duration:	Sep 30 2024 – Jun 30 2025 Approx 1hr per participant.	Time Zone:	All of them.

How to access dataset:	https://osf.io/wm39e/
Point of Contact for data questions:	Email Scott Brown scott.brown@newcastle.edu.au

Description of Scenario

Experiment Objectives

This data set is one of three parts in HSR aimed at evaluating efficacy of cognitive biases in reducing the productivity of cyber attackers. This one of the three parts (canonical methods, or "Bronze Tier") implements measurements of cognitive biases in traditional surveys and questionnaires which are established methods from the cognitive science literature.

Experiment Description

Data collection completely online. Different pools of participants sourced from undergraduate students (no cyber expertise) and also from online networks of cyber experts. Bronze Tier data collection occurred after participants completed consent procedures, a skills test, and then the "Gold Tier" cyber experiment (a capture-the-flag style HSR) and "Silver Tier" funfaire activities. In the Silver Tier data collection, participants spent approximately 1 hour in several different lab-style behavioural tasks. These tasks were presented as traditional survey style questions in the QuestionPro framework. For a full accounting of the methods used in Bronze tier data, see the appendix at the end of this document.

Experimental Results

Full details of the experimental results are available in our Data Report (email for access). Briefly, the experiments showed that standard behavioural measures of cognitive biases largely matched established results and that these could be aligned with cyber-relevant versions of the same biases in nearly all cases. Measurements of bias susceptibility aligned with nearly all Gold Tier measures, within 1.5 standard deviations.

Data

Data Sources

Primary Data Sources

Each of the behavioural tasks in the QuestionPro environment recorded data locally to secure servers. Those data are exported directly to the available CSV files. These primary data include logs of all answers to survey questions and demographics questions.

Derivative Data Sets

Not applicable – all data is "raw" by nature in this tier.

Research

Hypotheses

These data were used to ground research hypothesis that cognitive biases could be measured in both behavioural tasks (Silver tier) and cyber-testbed tasks (Gold tier) -- Bronze serves as the means of comparison to canonical methods. These data were subsequently used to investigate the hypothesis that the measured bias would agree in magnitude (within error limits) with measurements of the same bias from the corresponding cyber-relevant task.

Publications

French, L., Thorpe, A., Salibayeva, K., Brown, S., Eidels, A., Forties, R., Fry, Z., Hewlett, E., & Inoue, H. (2024). *Combatting cyberattacks with cognitive bias*. [Conference presentation]. Performance and Expertise Research Centre Conference, Sydney, Australia.

Thorpe, A., French, L., Salibayeva, K., Brown, S., Eidels, A., Forties, R., Fry, Z., Hewlett, E., & Inoue, H. (2025). *Hackers are (only) human too: Understanding cognitive biases in cybersecurity* [Conference presentation]. Australasian Mathematical Psychology Conference, Sydney, Australia.

French, L., Thorpe, A., Salibayeva, K., Brown, S., Eidels, A., Forties, R., Fry, Z., Hewlett, E., & Inoue, H. (2025). *Hackers are (only) human (part) too: Validating and exploiting biases to disrupt hacker efficiency* [Conference presentation]. Australasian Mathematical Psychology Conference, Sydney, Australia.

This will be updated as the project continues. The data set is reported in several publications which are currently either under review or in preparation.

Appendix – Full Description of Canonical Methods

Bias	Original Established Measure	Trigger Conditions
Law of Small Numbers	6 Questions	Established measure induce bias. 6 extra questions seek to reduce bias/ act as control
Base Rate Neglect	8 Questions	7/ 8 established measures used as control. Final questions and 6 new questions used to trigger bias
Hot hand/ Gambler's fallacy	5 Questions	Established measure acts as control. 5 new questions aim to trigger bias further.
Sunk Cost Fallacy	8 Questions	Established measure acts as control. 8 new questions aim to trigger bias further.
Framing Effect	16 questions	Established measures already has 8 gain frames and 8 loss frames. No new questions
Endowment Effect	Tested in silver	
Distinctiveness Effect	Word recall task	A third distinct word added to word recall task.
Default Effect	5 Questions	Each question already had a control condition. No changes
Anchoring Bias	6 questions	4 questions were already matched pairs with high and low anchors. To extra questions added to have 4 matched pairs.
Near-Miss Effect	1 question	Difficult to alter. Two new questions added.
Hot Stove Effect	Tested in silver	

Confirmation Bias	Two questions with 8 responses each	Expanded to 4 questions. Same two questions, but each with two hypotheses.
Cognitive Load	Not tested in bronze	
Mere Exposure effect	Word recall task	Additional control task added where all words appear the same number of times

CV1: Information Quality/ Representativeness Heuristic

Bias 1: Law of Small Numbers

The original established methods questions involved 6 questions. These questions are now used to trigger the bias whilst additional modified versions of the questions are used to reduce the bias.

Original Q1

> A certain town is served by two hospitals. In the larger hospital about 45 babies are born each day, and in the smaller hospital about 15 babies are born each day. For a period of 1 year, each hospital recorded the days on which more than 60 percent of the babies born were boys. Which hospital do you think recorded more such days?
> a. The larger hospital
>
> b. The smaller hospital
>
> c. About the same (that is, within 5 percent of each other)
>
> Answer = b

Reduce bias Q1

> A certain town is served by two hospitals. In the larger hospital about 45 babies are born each day, and in the smaller hospital about 15 babies are born each day. For a period of 1 year, each hospital recorded the days on which more than 60 percent of the babies born were boys. Smaller hospitals often experience trends that seem unusual but still align with broader patterns. Which hospital do you think recorded more days where more than 60% born were boys?
> a. The larger hospital
>
> b. The smaller hospital
>
> c. About the same (that is, within 5 percent of each other)
>
> Answer = b

Original Q2

Imagine an urn filled with balls, of which 2/3 are of one color and 1/3 of another. One individual has drawn 5 balls from the urn and found that 4 were red and 1 was white Another individual drew 20 balls and found that 12 were red and 8 were white. Which of the two individuals should feel more confident that the urn contains 2/3 red balls and 1/3 white balls, rather than the opposite?

Answer = person 2

Reduce bias Q2

Imagine an urn filled with balls, of which 2/3 are of one color and 1/3 of another. One individual has drawn 5 balls from the urn and found that 4 were red and 1 was white Another individual drew 20 balls and found that 12 were red and 8 were white. Small samples can often be unpredictable.

Which of the two individuals should feel more confident that the urn contains 2/3 red balls and 1/3 white balls, rather than the opposite?

Answer = person 2

Original Q3

The mean IQ of the population of eighth graders in a city is known to be 100. You have selected a random sample of 50 children for a study of educational achievements. The first child tested has an IQ of 150. What do you expect the mean IQ to be for the whole sample?

(Answer 101)

Reduce bias Q3

The mean IQ of the population of eighth graders in a city is known to be 100. You have selected a random sample of 50 children for a study of educational achievements. The last child tested was a surprise and has an IQ of 150. What do you expect the mean IQ to be for the whole sample?

(Answer 101)

Original Q4

In her first semester at State University, Juliet takes 3 classes and really likes the instructor in each of her classes. Based on this, she assumes that the classes in each of her remaining 8 semesters at the university will also have wonderful instructors. How confident are you in Juliet's evaluation? 1 = Not confident at all; 7 = Very confident

Answer= <4

Reduce bias Q4

In her first semester at State University, Juliet takes 3 classes and really likes the instructor in each of her classes. She assumes that the classes in each of her remaining 8 semesters at the university will also have

wonderful instructors. Small samples can often be unpredictable. How confident are you in Juliet's evaluation that she will like all of her instructors for the rest of the 8 Semesters? 1 = Not confident at all; 7 = Very confident

Answer= <4

Original Q5

Micah's 10-year-old daughter Felicia scores two goals in her very first soccer game. Based on this, Micah proudly predicts that Felicia will be the top scorer for her team for the year (25 games). How confident are you in Micah's prediction? 1 = Not confident at all; 7 = Very confident

Answer= <4

Reduce bias Q5

Micah's 10-year-old daughter Felicia scores two goals in her very first soccer game. Based on this, Micah proudly predicts that Felicia will be the top scorer for her team for the year (25 games). Small samples can often be unpredictable. How confident are you in Micah's prediction based on just one game? 1 = Not confident at all; 7 = Very confident

Answer= <4

Original Q6

Madeline and Denise love chocolate candy. Halloween comes and their mom puts together a candy bin. Whoever can guess how much chocolate is in the bin gets to keep it. Madeline tries first and scoops out a handful of candy--10 pieces. She notices that 1/2 are chocolate. Denise tries next and scoops out 30 pieces--1/3 are chocolate. Who is more likely to correctly guess how much chocolate candy is in the bin? A. Madeline B. Denise C. Both are equally likely

Answer= B. Denise

Reduce bias Q6

Madeline and Denise love chocolate candy. Halloween comes and their mom puts together a candy bin. Whoever can guess how much chocolate is in the bin gets to keep it. Madeline tries first and scoops out a handful of candy--10 pieces. She notices that 1/2 are chocolate. Denise tries next and scoops out two handfuls of 15 pieces for a total of 30 pieces--1/3 are chocolate. Small samples can often be unpredictable. Who is more likely to correctly guess how much chocolate candy is in the bin? A. Madeline B. Denise C. Both are equally likely

Answer= B. Denise

CV1: Information Quality Law of Small Numbers		
Questions to be presented as part of online questionnaire in any order, questions answered so that they are suggestive of the law of small numbers should be scored one.		
Question	Method	Reference
Original LSN 1 & 2	Any answer other than the correct answer	Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases: Biases in judgments reveal some heuristics of thinking under uncertainty. *science*, *185*(4157), 1124-1131.
Original LSN 3	Answers other than 101	Tversky, A., & Kahneman, D. (1971). Belief in the law of small numbers. *Psychological bulletin*, *76*(2), 105.
Original LSN 4-6	Answers other than those detailed in question above	Yoon, H., Scopelliti, I., & Morewedge, C. K. (2021). Decision making can be improved through observational learning. Organizational Behavior and Human Decision Processes, 162, 155-188.

Bias 2: Base Rate Neglect

The original established measures question list had 8 questions. This set has 7 of the questions as a baseline for the bias and 7 additional questions (including the eighth question from the original set where we seek to trigger a stronger bias response).

Original Q1.

> The following description has been drawn from a sample of 30 engineers and 70 lawyers: "Jack is a 45 year old man. He is married and has four children. He is generally conservative, careful, and ambitious. He shows no interest in political and social issues and spends most of his free time on his many hobbies, which include home carpentry, sailing, and mathematical puzzles."
>
> The probability that Jack is one of the 30 engineers in the sample of 100 is:
>
> 0% ---100 %
>
> Answer: 30%

Induce bias Q1.

The following description has been drawn from a sample of 30 engineers and 70 lawyers: "Jack is a 45 year old man. He is married and has four children. He is generally conservative, careful, and ambitious. He shows no interest in political and social issues and spends most of his free time on his many hobbies, which include home carpentry, sailing, and mathematical puzzles."

Jack's background, hobbies, and personality seem to fit the characteristics of one group over the other. Based on this description, how likely is it that Jack is an engineer?

0% --100 %

Answer: 30%

Original Q2

Two cab companies operate in a given city, the Blue and the Green (according to the color of cab they run). 99 percent of the cabs in the city are Blue, and the remaining 1% are Green. A cab was involved in a hit-and-run accident at night. A witness later identified the cab as a Green cab. The court tested the witness' ability to distinguish between Blue and Green cabs under nighttime visibility conditions. It found that the witness was able to identify each color correctly about 80% of the time, but confused it with the other colour about 20% of the time.

What do you think are the approximate chances that the errant cab was indeed Green, as the witness claimed?

0% --100 %

Correct answer = approximately 4%

Induce bias Q2

Two cab companies operate in a given city, the Blue and the Green (according to the color of cab they run). 99 percent of the cabs in the city are Blue, and the remaining 1% are Green. A cab was involved in a hit-and-run accident at night. A witness later identified the cab as a Green cab. The court tested the witness' ability to distinguish between Blue and Green cabs under nighttime visibility conditions. It found that the witness was able to identify each color correctly about 80% of the time, but confused it with the other color about 20% of the time.

This witness has been known to be reliable. Imagine how impactful it is for someone to see a distinct Green cab among so many Blue ones. Given this, how likely do you think the cab was Green?

0% --100 %

Correct answer = approximately 4%

Original Q8/ baseline for Q3-

10 out of every 1,000 women at age forty who participate in routine screening have breast cancer. 8 out of every 10 women with breast cancer will get a positive mammography. 95 out of every 990 women without breast cancer will also get a positive mammography.

Here is a new representative sample of women at age forty who got a positive mammography in routine screening. How many of these women do you expect to actually have breast cancer?

Correct answer = 8

Out of

Correct answer = 103

What is the likelihood of her having cancer?

Original Q3/ induce bias

The probability of breast cancer is 1% for a woman at age forty who participates in routine screening. If a woman at this age has breast cancer, the probability is 80% that she will get a positive mammography. If a woman does not have breast cancer, the probability is 9.6% that she will also get a positive mammography . A woman in this age group had a positive mammography in a routine screening.

What are the chances that she actually has breast cancer?

0% ---100 %

Answer = approximately 7.8%

Original Q4

In a study, 1000 people were tested. Among the participants, there were 4 men and 996 women. Dominique is a randomly chosen participant of this study. Dominique is 23 years old and is finishing a degree in engineering. On Friday nights, Dominique likes to go out cruising with friends while listening to loud music and drinking beer.

What is the approximate probability that Dominique is a man?

0% ---100 %

Answer = 0.4%

Induce bias Q4

In a study, 1000 people were tested. Among the participants, there were 4 men and 996 women. Dominique is a randomly chosen participant of this study. Dominique is 23 years old and is finishing a degree in engineering. On Friday nights, on Friday nights, Dominique stereotypically likes to listen to loud music and drink beer whilst cruising with friends. Given this description, how likely do you think it is that Dominique is a man?

0% ---100 %

Answer = 0.4%

Original Q5

Consider a group in which 70% of the individuals are doctors and 30% are fashion models: an individual drawn at random from this group has been in seven different, highly publicized magazines. Which of the following is more likely:

    a. This person is a doctor.

    b. This person is a fashion model.

Answer = A

Induce bias Q5

Consider a group in which 70% of the individuals are doctors and 30% are fashion models: an individual drawn at random from this group has been in seven different, highly publicized magazines. Based on all this information do you think:

    c. This person is a doctor.

    d. This person is a fashion model.

Answer = A

Original Q6

Consider a group composed of 80% kangaroos and 20% tasmanian devils. An animal drawn at random has a very bad temperament, is easily startled, and has just bitten someone. Which of the following is more likely:

    e. This animal is a kangaroo

    f. This animal is a tasmanian devil

Answer = A

Induce bias Q6

Consider a group composed of 80% kangaroos and 20% tasmanian devils. An animal drawn at random has a very bad temperament, is easily startled, and has just bitten someone. Based on all this information do you think:

    g. This animal is a kangaroo

    h. This animal is a tasmanian devil

Answer = A

Original Q7

Two cab companies operate in a given city, the Blue and the Green (according to the color of cab they run). Eighty-five percent of the cabs in the city are Blue, and the remaining 15% are Green. A cab was involved in a hit-and-run accident at night. A witness later identified the cab as a Green cab. The court tested the witness' ability to distinguish between Blue and Green cabs under nighttime visibility conditions. It found that the witness was able to identify each color correctly about 80% of the time, but confused it with the other color about 20% of the time.

What do you think are the chances that the errant cab was indeed Green, as the witness claimed?

0% --100 %

Induce bias Q7

Two cab companies operate in a given city, the Blue and the Green (according to the color of cab they run). Eighty-five percent of the cabs in the city are Blue, and the remaining 15% are Green. A cab was involved in a hit-and-run accident at night. A witness later identified the cab as a Green cab. The court tested the witness' ability to distinguish between Blue and Green cabs under nighttime visibility conditions. It found that the witness was able to identify each color correctly about 80% of the time, but confused it with the other color about 20% of the time.

This witness has been known to be reliable. Imagine how impactful it is for someone to see a distinct Green cab among so many Blue ones. Given this, how likely do you think the cab was Green?

0% --100 %

Correct answer = approximately 41%

CV1: Information Quality/ Representativeness heuristic		
Base Rate Neglect		
Questions to be presented as part of online questionnaire in any order, the percent answered suggestive of base rate neglect should give a score for each participant. Where there are two sub-questions show them separately to minimize part a response impacting response b.		
Question	Response expected	Reference
Original BRN 1	Answers- higher than 30% show that individuals have experienced BRN.	Kahneman, D., & Tversky, A. (1973). On the psychology of prediction. *Psychological review*, *80*(4), 237.
Original BRN 2	Uses extreme stats- Answers that differ from approximately 4%, typically higher show BRN	Murray, J., Iding, M., Farris, H., & Revlin, R. (1987). Sample-size salience and statistical inference. *Bulletin of the Psychonomic Society*, *25*, 367-369.
Original and Induce BRN 3	Answers that differ from correct responses (and are higher) suggest BRN.	Gigerenzer, G., & Hoffrage, U. (1995). How to improve Bayesian reasoning without instruction: frequency formats. *Psychological review*, *102*(4), 684.
BRN 4	Answers higher than the correct answers	De Neys, W., & Glumicic, T. (2008). Conflict monitoring in dual process theories of

		thinking. *Cognition*, *106*(3), 1248-1299.
BRN 5 &6	Answers that differ from the correct answer suggest BRN. Questions from a recent study were only cited a few times but were part of a previous IARPA study	Yoon, H., Scopelliti, I., & Morewedge, C. K. (2021). Decision making can be improved through observational learning. Organizational Behavior and Human Decision Processes, 162, 155-188.
BRN 7	Answers that differ from approximately 41%, typically higher.	Kahneman and Tversky, 1973 in Murray, J., Iding, M., Farris, H., & Revlin, R. (1987). Sample-size salience and statistical inference. *Bulletin of the Psychonomic Society*, *25*, 367-369.

Bias 3: Hot Hand/ Gambler's Fallacy

The original established measures set was 5 questions, these are used as the baseline measure of the bias, five modified questions are then incorporated with the aim of triggering the bias further.

Original Q1

> Suppose an unbiased coin is flipped 7 times, and each time the coin lands on heads. If you had to guess on the next toss, what side would you choose?
> a. Heads
> b. Tails
> c. Heads and tails are equally likely
>
> Answer = C

Induce bias Q1

> Suppose an unbiased coin is flipped 7 times, and each time the coin lands on heads. It's quite rare for a coin to land on heads seven times in a row. If you had to guess on the next toss, what side would you choose?
> d. Heads
> e. Tails
> f. Heads and tails are equally likely
>
> Answer = C

Original Q2

> The Hullaballoo Festival is held every year after the mayor of one of the two rival towns of Marysville and Burlingame draws one of two rabbits out of a hat. When a black rabbit is drawn, the festival is held in Marysville, and when a brown rabbit is drawn out of the hat, the festival is held in Burlingame. Over the

past four years, a black rabbit has been drawn from the hat. Where is the festival more likely to be held this year?

    g. Burlingame.
    h. Marysville.
    i. Each town is equally likely to host the Hullaballoo Festival.

Answer = C

Induce bias Q2

The Hullaballoo Festival is held every year after the mayor of one of the two rival towns of Marysville and Burlingame draws one of two rabbits out of a hat. When a black rabbit is drawn, the festival is held in Marysville, and when a brown rabbit is drawn out of the hat, the festival is held in Burlingame. Over the past four years, a black rabbit has been drawn from the hat. With black rabbits being drawn four years in a row, it feels like a change might be 'due.' Given this streak, which town do you think is more likely to host the festival this year?

    j. Burlingame.
    k. Marysville.
    l. Each town is equally likely to host the Hullaballoo Festival.

Answer = C

Original Q3

At a casino, Vanessa is watching her friends play roulette. The roulette wheel is a standard model where on each turn it can land on either a red or a black slot with equal probability. As Vanessa watches, she sees black come up 8 times in a row. Which choice do you think most closely represents the likelihood that the next slot the roulette lands on will be red?

    m. -0%
    n. 25%
    o. 50%
    p. 100%

Answer = 50%

Induce bias Q3

At a casino, Vanessa is watching her friends play roulette. The roulette wheel is a standard model where on each turn it can land on either a red or a black slot with equal probability. As Vanessa watches, she sees black come up 8 times in a row. It's quite rare for black to occur eight times in a row. Which choice do you think most closely represents the likelihood that the next slot the roulette lands on will be red?

    q. 0%
    r. 25%
    s. 50%
    t. 100%

Answer = 50%

Original Q4

John plays for a minor league baseball team and normally gets a hit 1 out of every 4 times he bats (25% of the time). However, John has not had a hit in his last 10 at-bats. What is the chance that he will get a hit in his next at bat?

u. 0%
v. 25%
w. 50%
x. 100%

Answer = 25%

Induce bias Q4

John plays for a minor league baseball team and normally gets a hit 1 out of every 4 times he bats (25% of the time). However, John has not had a hit in his last 10 at-bats. This has not happened before. What is the chance that he will get a hit in his next at bat?

y. 0%
z. 25%
aa. 50%
bb. 100%

Answer = 25%

Low induce Q5

Mark and Kim have 4 children--Mike, Matt, Luke, and Chris--all boys. Kim desperately wants a daughter and finally gets pregnant. How likely is it (as a percentage) that Kim will have a girl?

a. 100%
b. 77%
c. 50%
d. 23%
e. 0%

Answer = 50%

Original Q5

Mark and Kim have 4 children--Mike, Matt, Luke, and Chris--all boys. Kim desperately wants a daughter and finally gets pregnant. She believes that her chances of having a girl are high considering she has had 4 boys in a row. How likely is it (as a percentage) that Kim will have a girl?

f. 100%
g. 77%

h. 50%

i. 23%

j. 0%

Answer = 50%

CV1: Information Quality/ Representativeness		
Gambler's Fallacy		
Question can be asked at any point, will give a score on how accurate predictions are. Typically, individuals underestimate the number of 'streaks' compared to chance.		
Question	Method	Reference
Original GF1-5	Gambler's fallacy would suggest that individuals consider the previous outcomes on the future chances of events occurring- i.e. participants are expected to give the wrong answer	Yoon, H., Scopelliti, I., & Morewedge, C. K. (2021). Decision making can be improved through observational learning. *Organizational Behavior and Human Decision Processes, 162*, 155-188.

CV2: Loss Aversion

Bias 4: Sunk Cost Fallacy

The original established measure involved 8 questions, 8 modified versions that seek to trigger a greater bias response are also added.

You will be presented with 8 hypothetical scenarios, each of which leads to a choice. For each one, tell us what you would do. [For each item subjects have a 6-point scale for which the two alternatives are written over the left-most and right-most points. The alternatives are provided after each scenario below.]

Original Q1

You have been looking forward to this year's Halloween party. You have the right cape, the right wig, and the right hat. All week, you have been trying to perfect the outfit by cutting out a large number of tiny stars to glue to the cape and the hat, and you still need to glue them on. On the day of Halloween, you decide that the outfit looks better without all these stars you have worked so hard on. [Wear stars; Go without.]

Induce Q1

You have been looking forward to this year's Halloween party. You have the right cape, the right wig, and the right hat. All week, you have been trying to perfect the outfit by cutting out a large number of tiny stars to glue to

the cape and the hat, and you still need to glue them on. On the day of Halloween, you decide that the outfit looks better without all these stars you have worked so hard on, but you've already invested so much effort into making them. [Wear stars; Go without.]

Original Q2

You have been asked to give a toast at your friend's wedding. You have worked for hours on this one story about you and your friend taking drivers' education, but you still have some work to do on it. Then you realize that you could finish writing the speech faster if you start over and tell the funnier story about the dance lessons you took together. [Finish the toast about driving; Rewrite the toast about dancing.]

Induce Q2

You have been asked to give a toast at your friend's wedding. You have worked for hours on this one story about you and your friend taking drivers' education, but you still have some work to do on it. Then you realize that you could finish writing the speech faster if you start over and tell a story about the dance lessons you took together. Do you take the time to finish the original speech. [Finish the toast about driving; Rewrite the toast about dancing.]

Original Q3

You are painting your bedroom with a sponge pattern in your favorite color. It takes a long time to do. After you finish two of the four walls, you realize you would have preferred the solid color instead of the sponge pattern. You have enough paint left over to redo the entire room in the solid color. It would take you the same amount of time as finishing the sponge pattern on the two walls you have left. [Finish the sponge pattern; Redo the room in a solid color.]

Induce Q3

You are painting your bedroom with a sponge pattern in your favorite color. It takes a long time to do. After you finish two of the four walls, you realize you would have preferred the solid color instead of the sponge pattern. You have enough paint left over to redo the entire room in the solid color. It would take you the same amount of time as finishing the sponge pattern on the two walls you have left. Do you stick with your original plan or do you try the solid color [Finish the sponge pattern; Redo the room in a solid color.]

Original Q4

You have invested a good deal of your time into a project and it is failing. You have the option to start on something different that you now know is more likely to be successful but you know you cannot get the time back that you spent on the project. [Keep going with the project; Start something different.]

Induce Q4

You have invested a good deal of your time into a project and it is failing. You have the option to start on something different that you now know is more likely to be successful but you cannot get the time back that you spent on the project do you stick with the original project and hope to turn it around? [Keep going with the project; Start something different.]

Original Q5

You have an investment strategy that you have developed over several months. It is not working, and you are losing money, but there is no way for you to recover the lost effort put into developing the strategy. [Start afresh; Keep going.]

Induce Q5

You have an investment strategy that you have developed over several months. It is not working, and you are losing money, there is no way for you to recover the lost effort put into developing the strategy, do you give it more time to see if it works. [Start afresh; Keep going.]

Original Q6

Your relationship with your partner is not going well. You have reasoned it out and you have realized that if you knew how it would go when you started the relationship you would not have gone through with it. You now have the opportunity to break up, but you have been together for many months. [Keep going; Break up.]

Induce Q6

Your relationship with your partner is not going well. You have reasoned it out and you have realized that if you knew how it would go when you started the relationship you would not have gone through with it. You have been together for many months, do you try and save the relationship or break up. [Keep going; Break up.]

Original Q7

You have been thinking about how to vote in an election and have invested a good deal of your time to try and make the right decisions including reading newspapers and comment pieces online and thinking hard about the issues. You discover that much of the information you were using is false and a more trustworthy source suggests your initial view was wrong. [Keep beliefs; Change beliefs.]

Induce Q7

You have been thinking about how to vote in an election and have invested a good deal of your time to try and make the right decisions including reading newspapers and comment pieces online and thinking hard about the issues. You discover that much of the information you were using is false and a more trustworthy source suggests your initial view was wrong do you stick with your original beliefs or use the one new source. [Keep beliefs; Change beliefs.]

Original Q8

You have been thinking hard about the best route to get to somewhere you haven't been to before. Unfortunately, your internet connection isn't working so you have to base your decision on your beliefs about the town's layout. You come to a conclusion on the best possible route but then suddenly the internet is back online. [Look up route online; Stick to planned route.]

Induce Q8

You have been thinking hard about the best route to get to somewhere you haven't been to before. Unfortunately, your internet connection isn't working so you have to base your decision on your beliefs about the town's layout. You come to a conclusion on the best possible route but then suddenly the internet is back online do you use the plan you already have? [Look up route online; Stick to planned route.]

CV2: Loss Aversion
Sunk Cost Fallacy

Questions can be asked in any order and will give a score of percent answered that indicate sunk cost fallacy.		
Question	Method	Reference
Original SCF 1-8	8 option questionnaire – SCE-8	Ronayne, D., Sgroi, D., & Tuckwell, A. (2021). Evaluating the sunk cost effect. *Journal of Economic Behavior & Organization*, *186*, 318-327.

Bias 5: Framing Effects

The original established measure already utilised both gain and loss frames, so the original 16 questions/ 8 comparisons are kept.

Gain frames

1. Imagine that due to a restructuring plan, the Renault group will potentially have to lay off 6000 employees in France. The management is considering two plans to avoid such a situation:

If plan A is adopted, 2000 jobs will be saved.

If plan B is adopted, there is a 1/3 chance of saving the 6000 jobs and a 2/3 chance that no job will be saved.

Which option would you choose? [Adapted from Bazerman (1984)]

2. Imagine a storm approaching a city of 150,000 people. If nothing is done, 12,000 homes could be degraded. Public authorities must choose between two interventions:

If plan A is adopted, 3000 homes will be saved.

If plan B is adopted, there is a 25% chance of saving all 12,000 homes and a 75% chance that no home will be saved.

Which option would you choose? [Adapted from Fischhoff (1983)]

3. Imagine that after a serious traffic accident, 60 people are stranded in a tunnel. Public authorities must choose between two interventions:

If plan A is adopted, 20 people will be saved.

If plan B is adopted, there is a 1/3 chance of saving 60 people and a 2/3 chance of not saving anyone.

Which option would you choose? [Adapted from Wang (1996)]

4. Imagine that you have just spilled liquid on your external hard drive. 12 GB of personal data is at stake. You must quickly choose between two options:

If you choose option A, you will save 3 GB of data.

If you choose option B, there is a 1/4 chance of saving your 12 GB of data and a 3/4 chance that you will save no data.

Which option would you choose? [Adapted from Svenson and Benson (1993)]

5. Imagine that a group of 20 patients with the same heart disease have to undergo surgery. Doctors must choose between two interventions:

If intervention A is chosen, 6 patients will be cured.

If intervention B is chosen, there is a 30% chance that all 20 patients will be cured and a 70% chance that none will be cured.

Which option would you choose? [Svenson and Benson (1993)]

6. Imagine that an autonomous car out of control is rushing into a city crowd. If nothing is done, the accident will cause 120 deaths. Public authorities must choose between two interventions:

If intervention A is chosen, 30 people will be saved.

If intervention B is chosen, there is a 25% chance of saving 120 people and a 75% chance that no one will be saved.

Which option would you choose? [Adapted from Svenson and Benson (1993)]

7. Imagine that France is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows:

If program A is adopted, 200 people will be saved.

If program B is adopted, there is a 1/3 chance that 600 people will be saved, and a 2/3 chance that no people will be saved.

Which option would you choose? [Tversky and Kahneman (1981)]

8. Imagine that signs of contamination of drinking water with tritium (an isotope released from nuclear power stations) have been reported. If nothing is done, the 5000 inhabitants of the nearest town could be poisoned. Public authorities must choose between two interventions:

If intervention A is chosen, 1500 residents will be saved from poisoning.

If intervention B is chosen, there is a 30% chance of saving all 5000 inhabitants and a 70% chance that no people will be saved.

Which option would you choose? [Adapted from Fagley and Kruger (1986)]

Loss frames

9. Imagine that due to a restructuring plan, a company in the Metallurgy sector will potentially have to lay off 6000 employees in France. The management is considering two plans to avoid such a situation:

If plan A is adopted, 4000 employees will be laid off.

If plan B is adopted, there is a 1/3 chance of not firing any employee and a 2/3 chance of firing the 6000.

Which option would you choose?

10. Imagine a tsunami approaching a city of 150,000 people. If nothing is done, 12,000 homes could be degraded. Public authorities must choose between two interventions:

If plan A is adopted, 9000 homes will be degraded.

If plan B is adopted, there is a 25% chance that no home will be affected and a 75% chance that all 12,000 homes will be affected.

Which option would you choose?

11. Imagine that after a fire in a college, 60 students are stranded in a classroom. Firefighters must choose between two interventions:

If plan A is adopted, 40 students will die.

If plan B is adopted, there is a 1/3 chance that no student will die and a 2/3 chance that all 60 students will die.

Which option would you choose?

12. Imagine that your laptop is attacked by a computer virus. 12 GB of personal data is at stake. You must quickly choose between two options:

If you choose option A, you will lose 9 GB of data.

If you choose option B, there is a 1/4 chance of not losing any data and a 3/4 chance of losing all data.

Which option would you choose?

13. Imagine that a group of 20 patients with the same cancer have to undergo surgery. Doctors must choose between two interventions:

If intervention A is chosen, 14 patients will die.

If intervention B is chosen, there is a 30% chance that no patient will die and a 70% chance that all 20 patients will die.

Which option would you choose?

14. Imagine that a train out of control is about to derail near a village. If nothing is done, the accident will cause 120 deaths. Public authorities must choose between two interventions:

If intervention A is chosen, 90 people will die.

If intervention B is chosen, there is a 25% chance that no one will die and a 75% chance that 120 people will die.

Which option would you choose?

15. Imagine that France is preparing to face an epidemic wave that is expected to cause 600 deaths. Medical specialists have put forward two programs to deal with this situation. According to them, the effects of these programs are as follows:

If program A is adopted, 400 people will die.

If program B is adopted, there is a 1/3 chance that nobody will die, and a 2/3 chance that 600 people will die.

Which option would you choose?

16. Imagine that there are signs of a radioactive gas leak at a nuclear power station. If nothing is done, the 5000 inhabitants of a nearby municipality could be poisoned. Public authorities must choose between two interventions:

If intervention A is chosen, 3500 inhabitants will be poisoned.

If intervention B is chosen, there is a 30% chance that no inhabitant will be affected and a 70% chance that the 5000 inhabitants will be affected.

Which option would you choose?

CV2: Loss Aversion		
Framing		
Gain and loss frame questions should be presented with a sufficient gap between them so that participants do not answer from memory. Where responses differ between gain and loss frames, this is suggestive of framing effects.		
Question	Method	Reference
original F1-16	8 gain-framed questions and 8 loss-framed questions.	Berthet, V. (2021). The measurement of individual differences in cognitive biases: A review and improvement. *Frontiers in psychology*, *12*, 630177. [See supplementary material: https://www.frontiersin.org/articles/10.3389/fpsyg.2021.630177/full#supplementary-material]

Bias 6: Endowment Effect

No specific bronze questions- established measure involves giving ownership of an item so to be tested in Silver framework.

CV3: Information Presentation

Bias 7: Distinctiveness Effect

Word recall task to explore if more 'distinct' words are recalled. To trigger this further we can add a third 'distinct' word that incorporates both the distinctive features.

Original Task

Participants will be presented with a list of 20 words at 1 second intervals, following which participants will be asked to write down all the words that they remember from the list. Certain words will have increased distinctiveness, e.g. one bold or capitalised.

Foot	Lease	silver	Sell	Hike
Illusion	DESK	Offensive	Inn	Strategic
Day	Edge	Father	**Abolish**	Maze
Penny	Tired	Wedding	Egg	Poem

Induce bias Task

Participants will be presented with a list of 20 words at 1 second intervals, following which participants will be asked to write down all the words that they remember from the list. Certain words will have increased distinctiveness, e.g. one bold or capitalised.

Foot	Lease	silver	Sell	Hike
Illusion	DESK	Offensive	Inn	Strategic
Day	Edge	**FATHER**	**Abolish**	Maze
Penny	Tired	Wedding	Egg	Poem

CV3: Information Presentation		
Isolation/ distinctiveness effect		
Use a recall test. If 'distinct' information is more likely to be recalled. This could involve repeating the recall test without distinctiveness and then with distinctiveness or comparing memory for the distinct information between subjects, with some showing the distinct version and some showing a normal version.		
Question	Method	Reference
Original DE 1	Ask for free recall following the question and ask again after X many extra questions. (Words to be generated by AI request)	Schmidt, S. R. (1991). Can we have a distinctive theory of memory?. *Memory & cognition*, *19*, 523-542.

Bias 8: Default Effect:

The original established measures approach used 5 questions that each had a control- these are therefore all kept the same.

Question 1 (version 1).

You have just moved to a new country and have to confirm your organ donor status. Please make your choice below:

A) **I do not want** to be considered for organ donation (preselected)

B) **I want** to be considered for organ donation

Question 1 (version 2).

You have just moved to a new country and have to confirm your organ donor status. Please make your choice below:

A) **I want** to be considered for organ donation (preselected)

B) **I do not want** to be considered for organ donation

Original Q2A(neutral).

The National Highway Safety Commission is deciding how to allocate its budget between two safety research programs: i) improving automobile safety (bumpers, body, gas tank configurations, seatbelts) and ii) improving the safety of interstate highways (guard rails, grading, highway interchanges, and implementing selective reduced speed limits). It is considering four options:

    a. Allocate 70% to automobile safety and 30% to highway safety.
    b. Allocate 30% to automobile safety and 70% to highway safety.
    c. Allocate 60% to automobile safety and 40% to highway safety.
    d. Allocate 50% to automobile safety and 50% to highway safety.

Original 2B (Default).

'The National Highway Safety Commission is reassessing the allocation of its budget between two safety research programs: i) improving automobile safety (bumpers, body, gas tank configurations, seatbelts) and ii) improving the safety of interstate highways (guard rails, grading, highway interchanges, and implementing selective reduced speed limits). Currently, the commission allocates approximately 70% of its funds to auto safety and 30% of its funds to highway safety. Since there is a ceiling on its total spending its options are (select one):

    a. Maintain the present budget amounts for the program
    b. Decrease the automobile program by 40% and raise the highway program by the same amount.
    c. Decrease the automobile program by 10% and raise the highway program by the same amount.
    d. Decrease the automobile program by 20% and raise the highway program by the same amount.

Original 3A(neutral).

You are a serious reader of the financial pages but, until recently, have had few funds to invest. That is when you inherited a large sum of money from your great-uncle. You are considering different portfolios. Your choices are:

    a. Invest in moderate-risk Co A. Over a year's time, the stock has a .5 chance of increasing 30% in value, a .2 chance of being unchanged, and a .3 chance of declining 20% in value.

    b. Invest in moderate-risk Co B. Over a year's time, the stock has a .4 chance of doubling in value, a .3 chance of being unchanged and a .3 chance of declining 40% in value.

    c. Invest in treasury bills. Over a year's time, these will yield a nearly certain return of 9%.

    d. Invest in municipal bonds. Over a years' time they will yield a tax-free return of 6%.

Original 3B(default)

You are a serious reader of the financial pages but until recently have had few funds to invest. That is when you inherited a portfolio of cash and securities from your great-uncle. A significant portion of this portfolio is invested in moderate-risk Company A. You are deliberating whether to leave the portfolio intact or to change it by investing in other securities. (The tax and broker commission consequences of any change are insignificant.) Your choices are (check one):

    a. Retain the investment in moderate-risk Co A. Over a year's time, the stock has a .5 chance of increasing 30% in value, a .2 chance of being unchanged, and a .3 chance of declining 20% in value.

    b. Invest in moderate-risk Co B. Over a year's time, the stock has a .4 chance of doubling in value, a .3 chance of being unchanged and a .3 chance of declining 40% in value.

    c. Invest in treasury bills. Over a year's time, these will yield a nearly certain return of 9%.

    d. Invest in municipal bonds. Over a years' time they will yield a tax-free return of 6%.

Original 4A(neutral).

On behalf of your company, you are in charge of preparing a price bid to supply a fixed quantity of mattresses to the Army. The Army will select the lowest of the sealed price bids submitted. Your company's cost of fulfilling the contract (should it win it) is estimated to be $ 100,000. You are aware of a number of competitors who are eager to obtain the contract. You are considering four possible bids. Your choices are:

    a. Bid $115,000. Your chances of winning the contract are 70%.

    b. Bid $125,000. Your chances of winning the contract are 50%.

    c. Bid $120,000. Your chances of winning the contract are 60%.

    d. Bid $130,000. Your chances of winning the contract are 40%.

Original 4B(default).

On behalf of your company, you are in charge of preparing a price bid to supply a fixed quantity of mattresses to the Army. The Army will select the lowest of the sealed price bids submitted. Your company's cost of fulfilling the contract (should it win it) is estimated to be $100,000. Your company has not competed before for government

contracts. However, in bidding for business with large department stores, it has often applied a 15% markup over cost in setting its bid. Your estimate is that a bid of $115,000 has a 70% chance of winning the contract. You are also considering other bids. Your choices are:

    a. Bid $115,000. Your chances of winning the contract are 70%.
    b. Bid $125,000. Your chances of winning the contract are 50%.
    c. Bid $120,000. Your chances of winning the contract are 60%.
    d. Bid $130,000. Your chances of winning the contract are 40%.

Original 5A(neutral).

Having just completed your graduate degree, you have four offers of teaching jobs in hand. Your choices are:

    a. College A: low prestige school, moderate salary, very good chance of tenure
    b. College B: low prestige school, high salary, good chance of tenure
    c. College C: very prestigious school, high salary, fair chance of tenure
    d. College D: prestigious school, moderate salary, good chance of tenure

Original 5B(default).

You are currently an assistant professor at College A. Recently, you have been approached by colleagues at other universities with job opportunities. Your choices are:

    a. Remain at College A: low prestige school, moderate salary, very good chance of tenure
    b. College B: low prestige school, high salary, good chance of tenure
    c. College C: very prestigious school, high salary, fair chance of tenure
    d. College D: prestigious school, moderate salary, good chance of tenure

CV3: Information Presentation Default effect		
Conduct as a between participant's study to provide a measurement of default effect across the population.		
Question	Method	Reference
Original default 1	This method is best suited for a between-participant study, which looks at effectiveness at the population level rather than an individual's susceptibility to bias. Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of risk and uncertainty*, *1*, 7-59.	Johnson, E. J., & Goldstein, D. (2003). Do defaults save lives?. *Science*, *302*(5649), 1338-1339.
Original default 2-5	Compare responses to neutral question with responses to default question	Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of risk and uncertainty*, *1*, 7-59.

Bias 9: Anchoring

The initial established methods protocol had 6 questions. Four of these questions are already two pairs that use both a high and a low anchor, two of these questions have now had a modified question added to incorporate a version with a high and low anchor for a total of 4 low anchor questions and 4 high anchor questions to explore if these trigger different responses.

Original Q1a (Original Low anchor).

Do you think the percentage of African countries in the UN is higher or lower than 10%?

What percentage do you think it is? ___%

Original Q1b (Original High anchor).

Do you think the percentage of African countries in the UN is higher or lower than 65%?

What percentage do you think it is? ___%

Original Q2a (Original High anchor).

Calculate: 8 x 7 x 6 x 5 x 4 x 3 x 2 x 1

2b (Original Low anchor).

Calculate: 1 x 2 x 3 x 4 x 5 x 6 x 7 x 8

Answer = 40, 320

Original Q3 – High anchor.

Think about whether "The Godfather" first appeared in theaters before or after 1991. When did "The Godfather" first appear in theaters?

Anchor = 1991, right answer = 1972

Scored as: |Correct Answer – Answer| / |Correct Answer – Anchor|

New Q3- New low anchor.

Think about whether "The Godfather" first appeared in theaters before or after 1953. When did "The Godfather" first appear in theaters?

Anchor = 1953, right answer = 1972

Scored as: |Correct Answer – Answer| / |Correct Answer – Anchor|

Original Q4 (Low anchor).

Giraffes can run about 8 miles per hour. How long is a giraffe's tongue (in inches)?

Anchor = 8, answer = 20

Scored as: |Correct Answer – Answer| / |Correct Answer – Anchor|

New Q4 (High anchor)

Imagine if giraffes could run about 32 miles per hour.

How long is a giraffe's tongue (in inches)?

Anchor = 8, answer = 20

Scored as: |Correct Answer – Answer| / |Correct Answer – Anchor|

CV3: Information Presentation		
Anchoring bias		
Parts A and B of any question will need to be separated so that participants do not answer from memory.		
Question	Method	Reference
Original AB 1a/b & 2a/b	Ensure that as part of the battery of questions they are asked separately. When asked two questions with identical answers but with a different anchor, do individuals produce a different answer?	Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases: Biases in judgments reveal some heuristics of thinking under uncertainty. *science*, *185*(4157), 1124-1131.
Original AB 3 & 4	Questions with anchors were provided in a study conducted as part of previous IARPA research. Selected ones that are less US-centric.	Yoon, H., Scopelliti, I., & Morewedge, C. K. (2021). Decision making can be improved through observational learning. Organizational Behavior and Human Decision Processes, 162, 155-188.

CV4: Misleading Feedback

Bias 10: Near-Miss Effect

The original established methods for this bias used one canonical question. Given the difficulty in modifying this question two new questions have been added – one control and one to trigger the bias. The original question is also included to allow any comparisons between groups.

Original 1 - The winning number in a lottery was 865304. Three individuals compare the ticket they hold to the winning number. John holds 361204; Mary holds 965304; Peter holds 865305.

How upset are they respectively?

Q2 – (New induce) You have been playing a slot/ gambling machine where you need to match three symbols in a row. On the last two spins you have matched the first two symbols and nearly matched on the third would you continue to play?

Q2b – (new non-induce) You have been playing a slot/ gambling machine where you need to match three symbols in a row. On the last two spins you have matched none of the symbols, would you continue to play?

CV4: Misleading Feedback		
Near-miss effect		
Question	Method	Reference
Original	Typically, individuals think Peter should be more upset than Mary despite still being only one digit off.	Kahneman, D., & Tversky, A. (1982). The psychology of preferences. *Scientific American*, *246*(1), 160-173.

Bias 11: Hot Stove Effect

This is tested as part of Silver paradigm.

Bias 12: Confirmation Bias

The original approach had two questions each with a forced choice of 8 options. To compare directly this has been expanded to 4 questions so participants have the same question to confirm both a positive and a negative belief.

Below you will be given be given definitions for personality traits and a hypothesis about whether an interview candidate has this personality type, followed by a list of questions. For each personality trait, please select 8 questions to test the hypothesis.

Personality trait: **Agreeableness**

"This type of person is typically good-natured, gentle, and cooperative. They are generous, warm-hearted, and do not mind giving of their time and energy. They are not prone to jealousy. They will accept blame if things go wrong, rather than putting the blame on others. They are willing to compromise and find ways of cooperating with others, even in difficult situations."

Q1A (positive). The candidate has high agreeableness

Q1B Negative). The candidate has low agreeableness

Choose 8 of the following interview questions:

Questions assuming that the candidate has the personality trait

1. Tell me about a time you held yourself publicly accountable for a mistake you made.

2. What do you do to keep yourself in good spirits?

3. What is it about working with other people that you enjoy most?

4. What do you do to keep from resenting another person who seems to be getting all the break?

5. Tell me about a situation in which you spent time listening to a person who wanted to talk about a problem, even though you had other important things to do.

6. How has willingness to compromise contributed to your success?

7. How do you maintain a positive outlook on life?

8. Tell me about a situation in which cooperating with others really paid off for you.

Questions assuming that the candidate does not have the personality trait

1. What kinds of people seem to rub you the wrong one way?

2. Tell me about a time when your strong opinions got you in trouble?

3. Tell me about a time when your quick temper got you in trouble?

4. What most irritates you about others?

5. How does your jealousy of others usually show itself?

6. What are some ways in which you've been able to use others to help you achieve your own ends?

7. When was the last time when you tried to "get even" because someone did something that irritated you?

8. Describe a situation in which you are likely to be argumentative rather than cooperative.

Neutral questions

1. What do you see as your greatest strengths? Your greatest weaknesses?

2. What do you think are the most pressing problems facing America today?

3. What magazines do you subscribe to?

4. What would you say are the characteristics of a good teacher?

Personality trait: **Extraversion**

"This type of person is typically poised, calm, and composed. They rarely seem to get upset or nervous. They go on with what they are doing regardless of distractions. They do not lose their composure when provoked or when in an emergency situation. They perform well under pressure."

Q2A (positive). The candidate has high extraversion

Q2B (negative). The candidate has low extraversion

Questions assuming that the candidate has the personality trait

1. What events make you feel popular with people?

2. What do you do to keep yourself in good spirits?

3. What social activities (e.g., clubs, groups, fraternities or sororities) have you been active in over the years?

4. What do you like about living situations in which there are always lots of people around?

5. In what social situations are you most likely to be outgoing and friendly?

6. What do you think the good and bad points of acting friendly and open?

7. In what social situations are you most likely to feel self-assured and confident in yourself?

8. What would you do if you wanted to liven things up at a party?

Questions assuming that the candidate has does not have the personality trait

1. In what situations do you wish you could be more outgoing?

2. Tell me about sometime when you felt left out from some social group. How did you handle these feelings?

3. What kind of events make you feel like being alone?

4. What factors make it hard for you to really open up to people?

5. Describe to me a type of social situation that invariably makes you feel ill at ease and awkward. What is it about such situations that makes you feel uncomfortable?

6. Think about times when your shyness in social situations has made you come across as being aloof. Give me an example.

7. What things do you dislike about loud parties?

8. Think about a time when you really wanted to talk to someone, but just couldn't bring yourself to initiate conversation. What types of situations are most likely to make you feel this way?

Neutral questions

1. What activities do you really excel in?

2. What kind of charities do you like to contribute to?

3. What are some of your favorite books?

4. What are your career goals?

CV4: Misleading Feedback Confirmation bias		
Suggested approach is two questions to be presented to the participants. One where the hypothesis is that the individual has the personality type and one where they do not, with this alternating/ random between participants.		
Question	**Method**	**Reference**
1-4	Participants are asked to select 8 questions from 20, the percentage of these questions that come from 'confirming the bias' is then recorded.	Sackett (1979, 1982) *in* Berthet, V. (2021). The measurement of individual differences in cognitive biases: A review and improvement. *Frontiers in psychology*, *12*, 630177. [See supplementary material: https://www.frontiersin.org/articles/10.3389/fpsyg.2021.630177/full#supplementary-material]

CV5: Information Quantity

Bias 13: Cognitive Load

No specific questions- To be potentially controlled in the HSR as an intensifier for the other biases.

Bias 14: Mere Exposure Effect

The original established methods looked at ratings of made up words based on number of appearances. We have now added a control version to go with the trigger version.

Original- Induces bias

Participants will be told that the task is to explore the effect of repetition on the memory of words, and they will be presented one at a time on the following pages. Twelve seven-letter words will then be shown and repeated 0, 1, 2, 5, 10 or 25 times. Each time the word is shown, it should be shown for 2 seconds.

Ikitaf	Afworbu	Saricik	Biwojni
Nansoma	Kadirga	Enanwal	Dilikli
Zabulon	Lokanta	Jandara	Civadra

Following the presentation of all the words:

Part 2- Please rate the words as either good or bad on a scale of 0-6 (0= bad, 6 = good)

Part 3- Thank you- you do not need to remember these words.

New- Control

Participants will be told that the task is to explore the effect of repetition on the memory of words, and they will be presented one at a time on the following pages. Twelve seven-letter words will then be shown and repeated 10 times. Each time the word is shown, it should be shown for 2 seconds.

Ikitaf	Afworbu	Saricik	Biwojni
Nansoma	Kadirga	Enanwal	Dilikli
Zabulon	Lokanta	Jandara	Civadra

Following the presentation of all the words:

Part 2- Please rate the words as either good or bad on a scale of 0-6 (0= bad, 6 = good)

Part 3- Thank you- you do not need to remember these words.

CV5: Information Presentation
Mere exposure effect
Potentially best to put this question prior to the other word recall questions- those that involve asking to recall words after a set number of questions as otherwise participants may not believe they can forget them (and focus on remembering them rather than the next questions).

Question	Method	Reference
1	Look at any correlations between scores and exposure time.	Zajonc, R. B. (1968). Attitudinal effects of mere exposure. Journal of personality and social psychology, 9(2p2), 1.