

Appendix A Instructions for Study 1

PARTICIPANT INFORMATION SHEET



RESEARCH PROPOSAL TITLE

Online Surveys in Human Behaviour and Interaction

PRINCIPAL INVESTIGATOR OF THE PROPOSAL/PROJECT YOU ARE INVITED TO PARTICIPATE IN

Professor Zacharias Maniadiis

DURATION OF THE PROJECT

Overall duration of project is 4 months.

Each participant is asked to engage online for 10 minutes.

BRIEF DESCRIPTION OF THE PROJECT (OUTLINE THE PROCEDURE AND PURPOSE)

You will participate in a short online survey to examine economic and social decision-making. There will also be a very simple interaction with other participants. The purpose is to study economic and social decision-making.

DETAILS OF ANY RISKS THAT MAY EXIST OR ANY INCONVENIENCE THAT PARTICIPANTS MAY INCUR

No known inconveniences or risks.

DETAILS OF WHAT DATA WILL BE COLLECTED OR GENERATED FOR YOU WITHIN THE PROJECT, WHO WILL HAVE ACCESS TO THEM AND FOR HOW LONG

- The answers from surveys and choices in basic interactions with other participants.
- Demographic data (e.g. Age, Gender, Education, etc.)
- Prolific ID of the participant for bonus payments.

No personal data or other identifying information (names, address, phone numbers, emails, etc.) will be collected. The experiment is confidential but not anonymous. Once participants are paid, the dataset will be anonymized. The final anonymous dataset will be stored for at least 10 years and potentially published in an online public repository.

EXPECTED BENEFIT FOR PARTICIPANTS

Participants will be compensated with a fixed amount of money based on the duration of the questionnaire and a variable amount based on their choices in the basic interaction. Moreover, they will be exposed to actual research, gaining potentially useful academic experience.

EXPECTED BENEFIT FOR RESEARCHERS AND/OR SPONSORS

Collection of data that are relevant for the empirical testing of theories.

SITE AND TOTAL DURATION OF DATA COLLECTION EXPECTED UNDER THIS RESEARCH PROPOSAL

Data will be collected from May-August 2023 with online recruitment. Data will be saved in the safe servers of the University of Cyprus until the relevant papers are published..

DESCRIPTION OF RELEVANT PROCEDURES IN HANDLING THE DATA AND PERSONAL INFORMATION OF PARTICIPANTS WHO CHOOSE TO WITHDRAW FROM THE STUDY PRIOR TO ITS COMPLETION.

We will erase all data from participants that withdraw from the study.

FULL CONTACT DETAILS AND TITLE OF THE PERSON TO WHOM PARTICIPANTS CAN SUBMIT COMPLAINTS OR GRIEVANCES REGARDING THE PROGRAMME THEY PARTICIPATE IN.

Marios Demetriades

Head of Research Support Service of UCY

PO Box 20537, 1678, Cyprus

Phone: +357 22894287

NOTE:

This study has been approved by the **Cyprus National Bioethics Committee**[CNBC DECISION#2023.01.104] on 6-April-2023.

If you like to have a copy of this PARTICIPANT INFORMATION SHEET, please take a screenshot now.

Consent

- ☒ Yes, I have read and understood the information sheet and agree to take part in this research project
- ☐ No, I decided not to take part in this research project

Next

Instructions

Time left to complete this page: 2:33

Welcome to an experiment about decision-making procedures. Thank you for your participation!

During the experiment, you and other participants will be asked to make decisions. Your decisions, as well as the decisions of other participants will determine your payoff according to the rules explained in what follows. All your decisions and response will be kept anonymous and confidential.

The experiment consists of the following steps:

- A demographic questionnaire
- A belief questionnaire
- A game

Your overall income from the experiment is the sum of:

- Payment for participation of 2,25€
- Payoff from the game

Your payoff from participation depends on the choices of both you and your randomly matched opponent

Next

Demographics

Please answer the following questions.

What is your age?

25

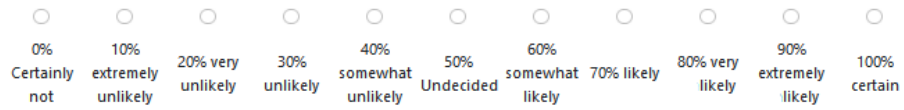
What is your gender?

Male

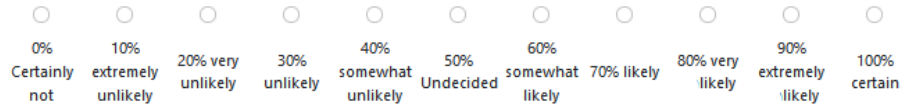
Next

I think that...

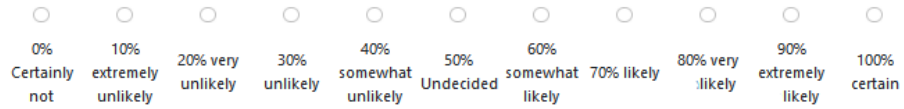
... many very important things happen in the world, which the public is never informed about.



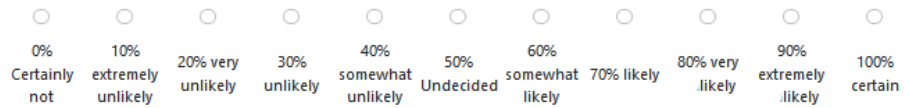
... politicians usually do not tell us the true motives for their decisions.



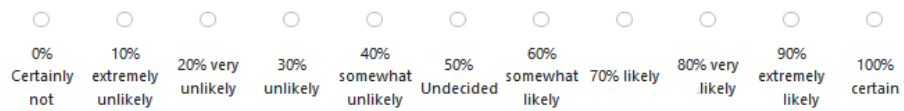
... government agencies closely monitor all citizens.



... events which superficially seem to lack a connection are often the result of secret activities.



... there are secret organizations that greatly influence political decisions.



Next

A Game

Time left to complete this page: 2:45

In this game, you will be randomly and anonymously paired with another player and play a game, in which each of you requests a certain amount of money. This amount of money should be between £0,1 and £1. Each player receives exactly the sum he requested. One of the players receives additional £1, if he requests exactly 0,1 pound less than the other player.

You and the other player make decisions simultaneously and only once, without knowing what the decision of the other player was. The identity of the other player will not be revealed to you, and your identity will not be revealed to him or her as well. You will learn the decision of the other player only at the end of the experiment.

Example 1

If both players request £0,8, both players receive £0,8.

Example 2

If the first player requests £0,7 and the second £0,6, then the first player receives £0,7 and the second $0,6 + 1 = £1,6$

Please bid an amount between £0,1 and £1:

Next

Feedback

Please explain why you made the particular choice

Next

Payment

You chose the amount £0.40 and your opponent chose £0.60

Your result is then £0.40.

Next

Appendix B Instructions for Study 2

PARTICIPANT INFORMATION SHEET



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The experiment consists of the following steps:

- A demographic questionnaire
- A game
- A belief questionnaire

Your overall income from the experiment is the sum of:

- Payment for participation of 2,25£
- Payoff from the game

Your payoff from participation depends on the choices of both you and your randomly matched opponent.

Demographics

Please answer the following questions.

What is your age?

25

What is your gender?

Male

Next

Video

Please click on the video below :



Where are the astronauts trained to work?

☐ In a pool ☐ In a void room ☐ In a "no-gravity" zone

Where are the boosters created?

☐ In Michoud ☐ In Clearfield ☐ At NASA's Kennedy Space Center

Next

Video

Please click on the video below :



According to one protagonist, how many days Saturn 5 orbited the Earth?

☐ 3 ☐ 5 ☐ 8

Who is Bill Kaysing?

☐ A journalist ☐ An engineer ☐ An astronaut

Next

In this game, you will be randomly and anonymously paired with another player and play a game, in which each of you requests a certain amount of points. This amount of points should be between 5 and 14. Each player receives exactly the points he requested. One of the players receives additional 10 points, if he requests exactly one token less than the other player.

You and the other player make decisions simultaneously and only once, without knowing what the decision of the other player was. The identity of the other player will not be revealed to you, and your identity will not be revealed to him or her as well. You will learn the decision of the other player only at the end of the experiment.

Example 1

If both players request 12 points, both players receive 12 points.

Example 2

If the first player requests 7 points and the second 6 points, then the first player receives 7 points and the second $6 + 10 = 16$ points.

Finally, the points will be transformed to pounds. 5 points will be transformed to £0.1 and any additional point will increase your payoff by £0.1. For example, 6 points will be transformed to £0.2, 14 points will be transformed to £1, and 23 points will be transformed to £1.9.

Please bid an amount between 5 and 14 points:

Next

Feedback

Please explain why you made the particular choice

Next

I think that...

I think it is important to be charitable to others.

☐	☐	☐	☐	☐
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I am better than others.

☐	☐	☐	☐	☐
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Being honest all of the time won't lead to success.

☐	☐	☐	☐	☐
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I'm not a particularly sympathetic person.

☐	☐	☐	☐	☐
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

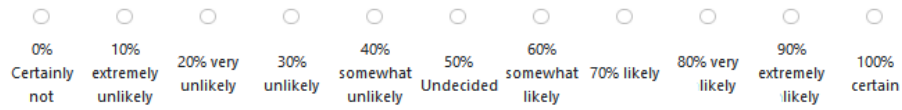
I tend to assume the best about people.

☐	☐	☐	☐	☐
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

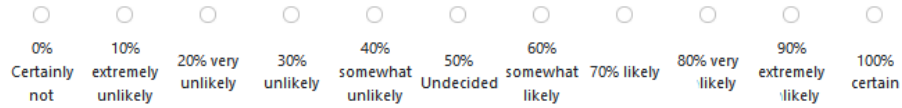
Next

I think that...

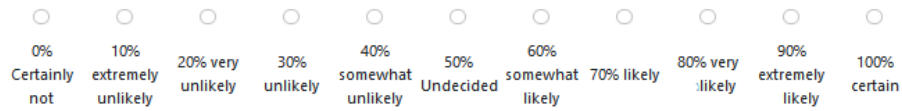
... many very important things happen in the world, which the public is never informed about.



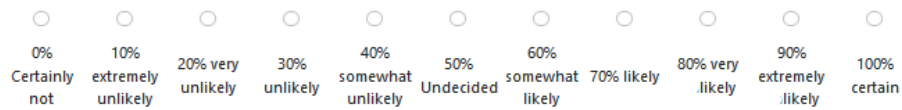
... politicians usually do not tell us the true motives for their decisions.



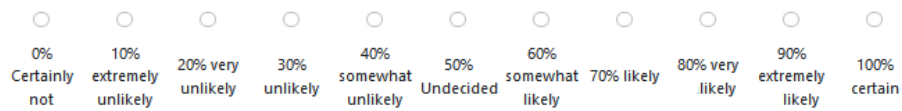
... government agencies closely monitor all citizens.



... events which superficially seem to lack a connection are often the result of secret activities.



... there are secret organizations that greatly influence political decisions.



Next

Payment

You chose the amount 11 points and your opponent chose 9 points.

Your payoff from the game is then £0.70.

Next

Appendix C Derivation of Nash equilibrium

First, we derive the Nash equilibrium in Study 1. It is straightforward to see that there is no Nash equilibrium in pure strategies, since for every strategy profile (c_1, c_2) Player 1 best responding to Player 2's choice implies $c_1 = c_2 - 1$, and Player 2 best responding to Player 1's choice implies $c_2 = c_1 - 1$, which is a contradiction. Therefore, we are looking for the Nash equilibrium in mixed strategies. In particular, we establish an equilibrium where the largest bid (1) is chosen with non-zero probability.

Denote p_1 the probability of choosing 1 as a bid. In a mixed strategy equilibrium, the player is indifferent between choosing 1 and choosing 0.9, that is

$$1 = 1.9 * p_1 + 0.9(1 - p_1) \Rightarrow p_1 = 0.1$$

where the left hand side is the expected own payoff from choosing 1 and the right hand side is the expected own payoff from choosing 0.9.

Similarly, denote $p_{0.9}$ the probability of choosing bid 0.9. In equilibrium, the player is indifferent between choosing 1 and 0.8, which implies

$$1 = 1.8 * p_{0.9} + 0.8(1 - p_{0.9}) \Rightarrow p_{0.9} = 0.2$$

Denoting $p_{0.8}$ the probability of choosing bid 0.8, the indifference between choosing 1 and 0.7 implies

$$1 = 1.7 * p_{0.8} + 0.7(1 - p_{0.8}) \Rightarrow p_{0.8} = 0.3$$

Finally, denoting $p_{0.7}$ the probability of choosing bid 0.7, the indifference between choosing 1 and 0.6 implies

$$1 = 1.6 * p_{0.7} + 0.6(1 - p_{0.7}) \Rightarrow p_{0.7} = 0.4$$

However, since $p_1 + p_{0.9} + p_{0.8} + p_{0.7} = 1$, p_6 will not be chosen with non-zero probability, therefore the probability of choosing 0.7 is defined as $p_{0.7} = 1 - p_1 - p_{0.9} - p_{0.8} = 0.4$. Any other bid lower than 0.7 is chosen by 0 probability in equilibrium. Therefore, the Nash equilibrium in Study 1 is $p_1 = 0.1$, $p_{0.9} = 0.2$, $p_{0.8} = 0.3$ and $p_{0.7} = 0.4$.

One can show that the equilibrium deducted above is the unique Nash equilibrium by considering the following two statements: 1. Any strategy profile where bid c is chosen with positive probability but $c+1$ is chosen with 0 probability cannot constitute a Nash equilibrium, since those who choose c get payoff c , which they could improve by choosing $c+1$. This implies that the highest bids are chosen with positive probabilities. 2. The sum of the probability weights on the bids has to be 1, therefore bids lower than 0.7 are chosen with 0 probability.

The calculation method for the mixed strategy Nash equilibrium in Study 2 is identical, with the notations p_{14} , p_{13} , p_{12} and p_{11} for the probabilities of choosing 14, 13, 12 and 11, respectively. The equilibrium in Study 2 is $p_{14} = 0.1$, $p_{13} = 0.2$, $p_{12} = 0.3$ and $p_{11} = 0.4$.

Appendix D Preregistration and power analysis

The power analysis was conducted based on the first table of Balafoutas et al. (2021). This table displays the strategic sophistication score (from 0 - not strategic, to 13 - extremely strategic) of the participants after watching the video on moon landing. The table displays the means and standard deviation of all groups (treatment and control) and the t-test with residuals of the comparison between groups. From this table, the smallest effect size was the Princess Diana. The effect size of the Moon landing (our targeted experiment) was higher, and using the Princess Diana will lead to having a higher power to detect an effect. Using R, we found that the minimal effect size from the t-test was a Cohen's δ of 0.47 :

```
effectsize::t_to_d(0.097, 0.170, paired=F)
d = 0.47
```

To ensure that the effect was correct, we also computed a Cohen's δ based on the means and standard-deviation as follows:

```
stats <- MOTE::d.ind.t(m1 = 1.958, m2 = 1.861, sd1 = 0.123, sd2 = 0.118, n1
= 72, n2 = 72, a = 0.05)
data.frame(d = MOTE::apa(stats$d), dlow = MOTE::apa(stats$dlow), dhigh =
MOTE::apa(stats$dhigh))
d dlow dhigh
0.805 0.464 1.143
```

Here again, the dlow is = 0.464.

To get the required sample size, we used this smallest effect size of interest. Using the package pwr and the following formula :

```
pwr::pwr.t.test(d = 0.46, sig.level= 0.05, power = 0.90, type = "two.sample",
alternative = "two.sided")
```

The result is:

Two-sample t test power calculation

n = 100.2841

NOTE: n is number in *each* group

Therefore, we pre-registered a required number of participants of 101 per group.

Appendix E Error in the preregistration

The preregistration is timestamped but we also added a data collection date within the preregistration. This date is erroneous. For the first experiment, the final version of the pre-registration was created on the 10 October 2023, and indicated that the experiment was conducted in March, although the experiment was conducted the 11 and the 12 of October, after the data collection. The image below is a screenshot from Prolific.

All studies	Draft	Active	Scheduled	Completed 4
Status	Internal name	Name	Created ↓	
Completed	conspi study 2	A study about how videos influence decisio...	21 Nov 2023, 10:47	⋮
Completed	mindset and strategy 44	A study about of mindset influences game b...	12 Oct 2023, 14:01	⋮
Completed	strategy and mindset 50	A study about of mindset influences game b...	11 Oct 2023, 13:14	⋮
Completed	mindset and strategy 12	A study about of mindset influences game b...	4 Oct 2023, 11:07	⋮

The “mindset and strategy 12”, conducted on the 4th of October 2023 was a pretest on 12 individuals. Therefore, the data collection was launched after the pre-registration, contrary to the dates within the preregistration.