Individual Differences in Decision Making

Cognitive Science Term Project

By Sandarsh Pandey

Guide : Dr Amitabha Mukerjee
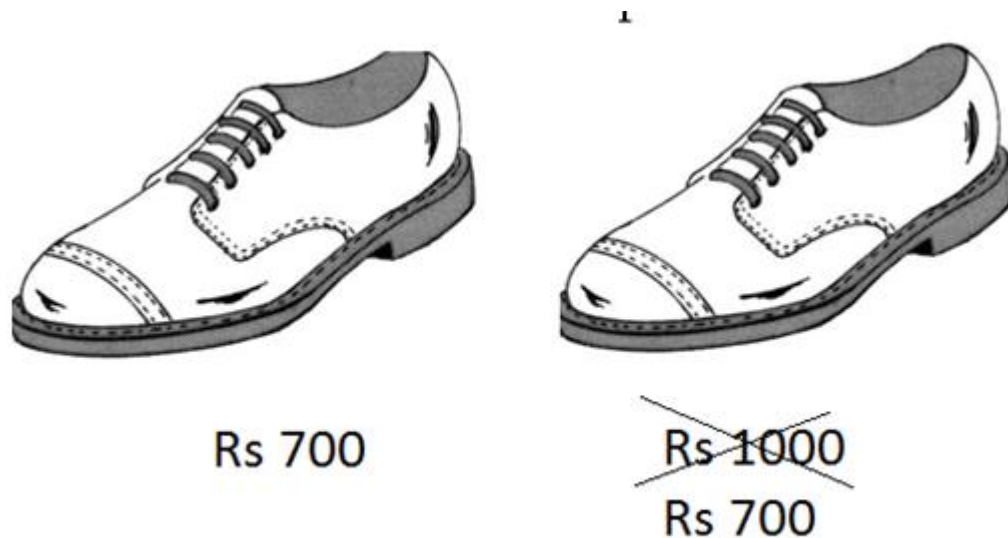
Our decisions are not always rational

Background

The same question, presented in different formats, can elicit different responses

Rs 700   ~~Rs 1000~~
                Rs 700

Which shoe would you buy?

Anchoring refers to the human tendency of relying too heavily on the initial piece of information when making decisions

Psychologists divide personality into five broad domains :
- Openness
- Conscientiousness
- Extraversion
- Agreeableness
- Neuroticism

NEO-PIR is the gold standard for measuring the personality parameters but researchers prefer TIPI for experiments

Objective

- To demonstrate that anchoring is quite prevalent in our decision making process.

- To observe the effect of the personality traits on our decision making process with regards to the response to the anchoring cues

Motivation

- The literature is not unanimous on the extent to which a personality trait affects the individual's response to anchoring cues.
- Different groups have reported different results.
- Understanding this will shed light our decision making process

Methodology

i) Anchoring Demonstration

Q 1) Is the height of the Eiffel Tower greater than or lesser than 840 feet?

Answer-

Please answer the question below **after attempting the above question**.

Part of the Questionnaire

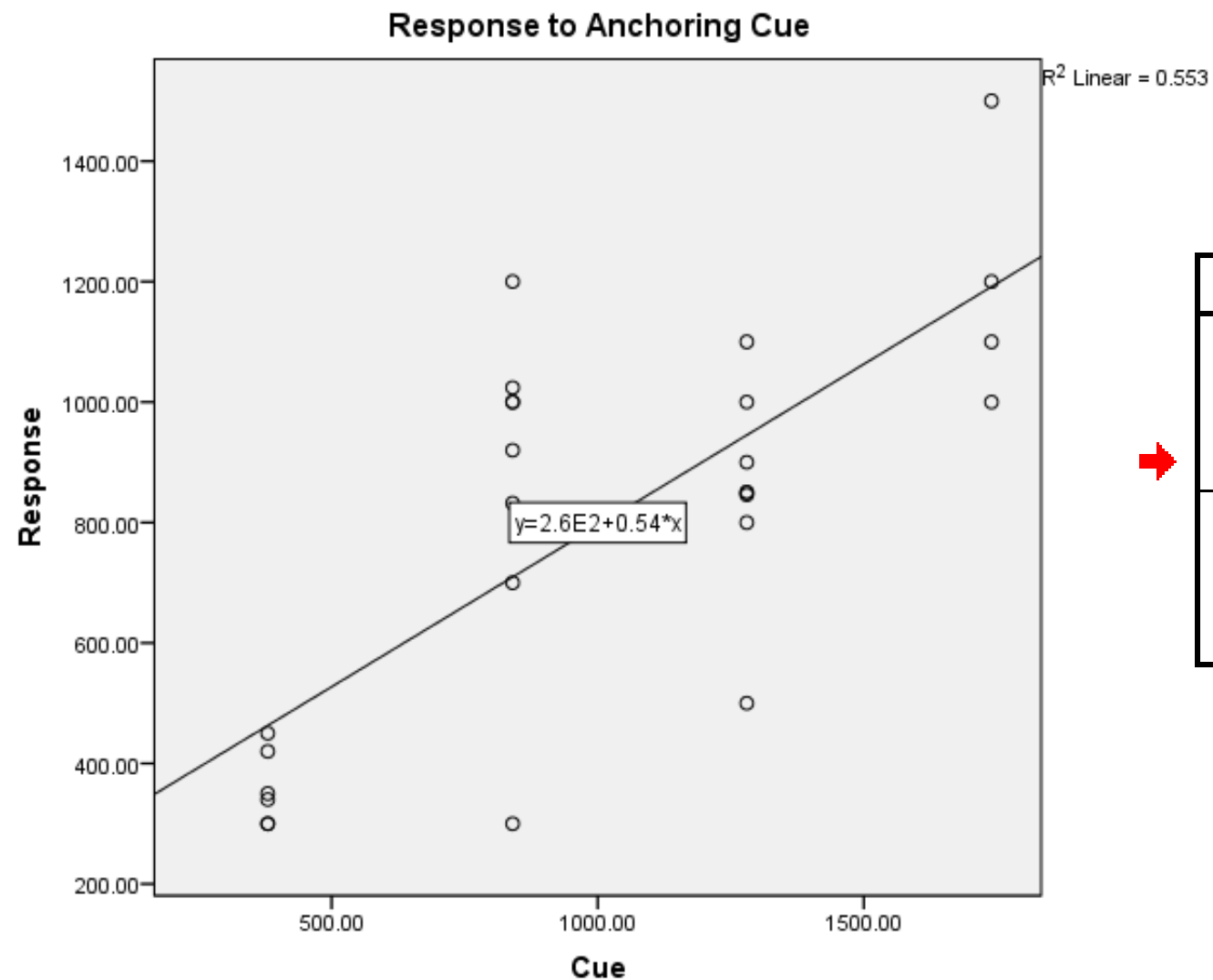Q 2) Estimate the height (in feet) of the Eiffel Tower

Answer -

- 4 different cues were provided to random participants resulting in formation of 4 groups each having a different anchor.

ii) Observing the effect of personality traits on the response to anchoring cues

- Participants were asked to fill the Ten Item Personality Inventory Form post filling the initial part of the form shown on the left

Results

i) Anchoring Demonstration

Response to Anchoring Cue

R^2 Linear = 0.553

$y=2.6E2+0.54*x$

(Scatter plot with Response on y-axis ranging 200.00 to 1400.00+ and Cue on x-axis ranging 500.00 to 1500.00)

Correlations

|		Cue	Response
Cue	Pearson Correlation	1	.744**
	Sig. (2-tailed)		.000
	N	26	26
Response	Pearson Correlation	.744**	1
	Sig. (2-tailed)	.000	
	N	26	26

**. Correlation is significant at the 0.01 level (2-tailed).

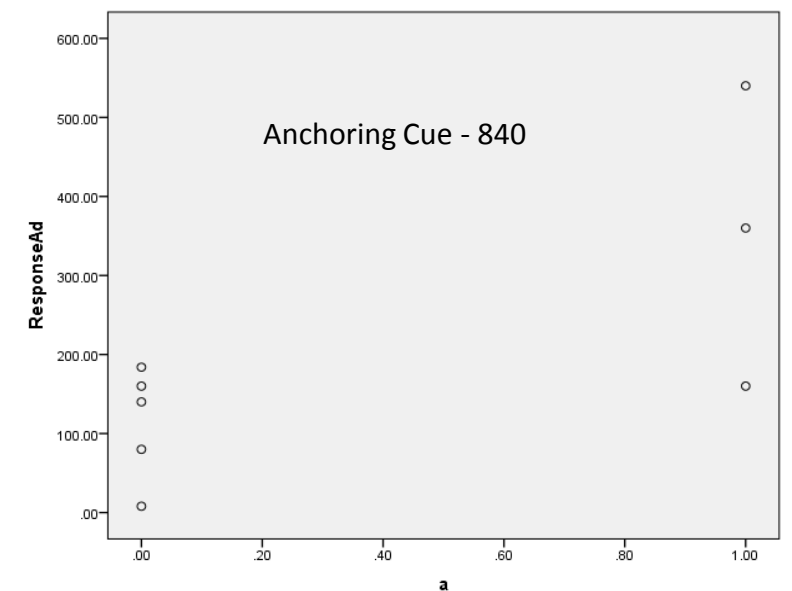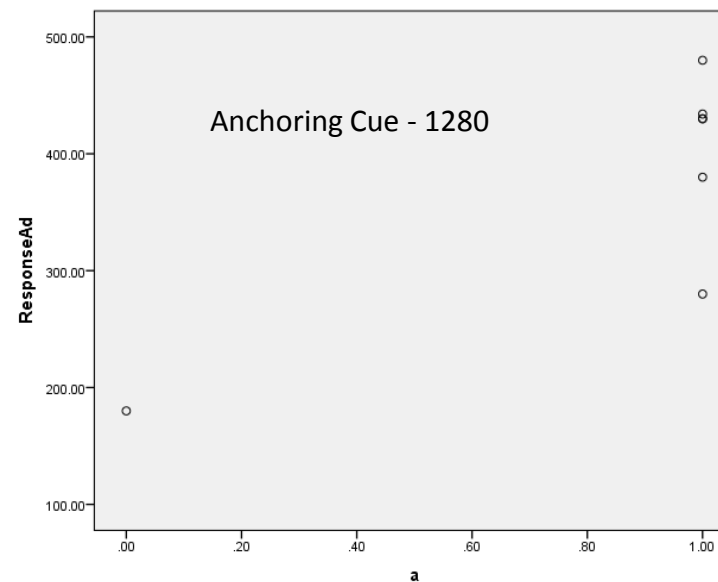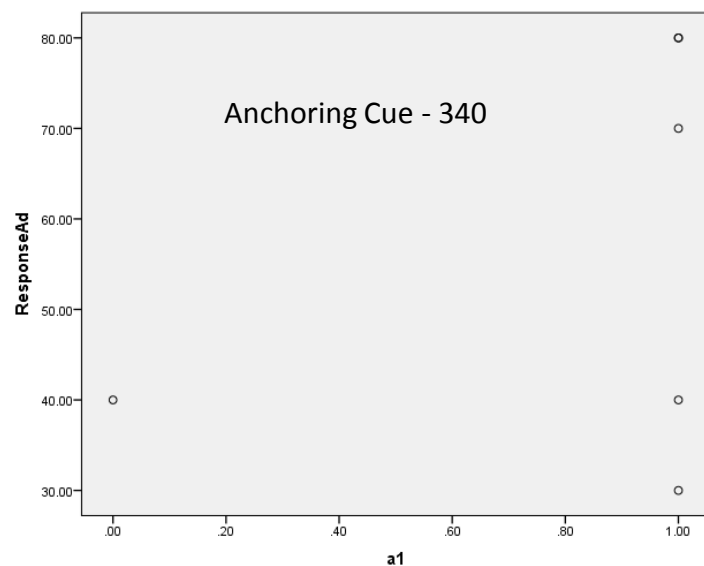Participants depended heavily on the anchor while estimating the height of the Eiffel Tower

Results

ii) Observing the effect of personality traits on the response to anchoring cues

a) Openness
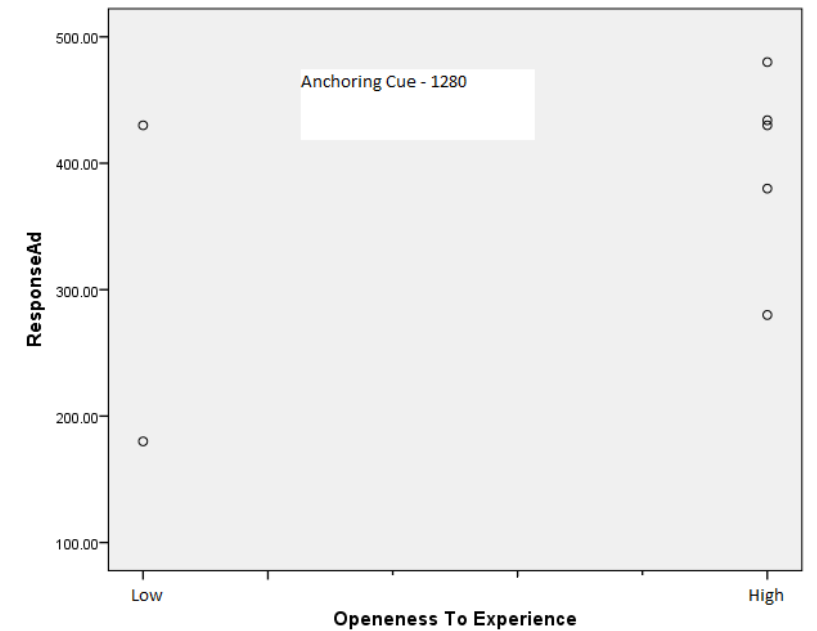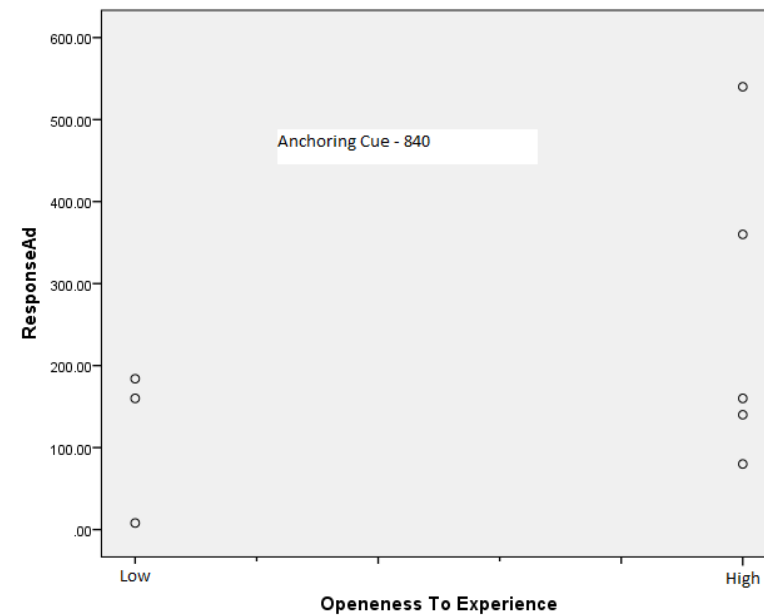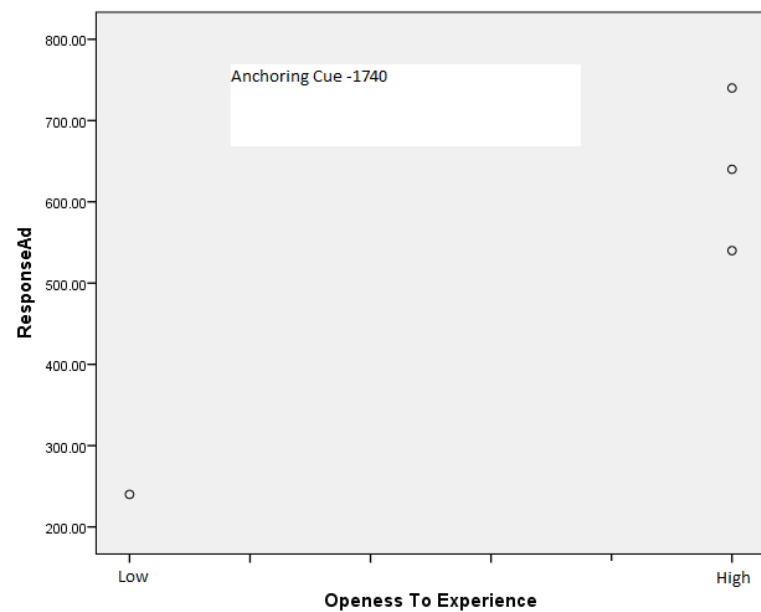
b) Agreeableness

Conclusions

- The anchoring bias was successfully demonstrated in the experiment. The Pearson Correlation coefficient was 0.744 and this was statistically significant.
- It is also seen that out of the 5 personality traits, Openness to Experience and Agreeableness seemed to affect the response.
- It is observed that individuals scoring high on these 2 traits were least affected by the Anchoring Cue.
- The data set for the second part of the experiment, however, is too small for the result to be significant.

Further Work

- The 2nd objective of the experiment could not be successfully pursued due to the unavailability of a large data set. We should target a data set of around 200 students so as to get statistically significant data.
- We can perform multiple regression analysis, once the data set is large, and observe how much variation in response is governed by the 5 traits as a whole and what is the individual contribution of each trait, if any.

References

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- Tversky, A. & Kahneman, D. (1974). "Judgment under uncertainty: Heuristics and biases". Science, 185, 1124 - 1130.
- Predictably Irrational by Dan Ariely

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