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Human Decision Making

Group 9

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Introduction

Human decision making is a complex process and has been studied for a long time. Usually, as humans, we have the tendency of thinking that our mistakes are as a result of gaps within the information we receive rather than due to our poor reasoning. It is the same logic that trickles down to our decision problems, where we constantly violate the requirements of consistency and coherence as a guide to human rationality (Tversky and Kahneman). People often think that good decisions happen when time and effort is invested in getting all the information they can obtain by reviewing and finally making a decision. However, according to studies conducted by Tversky and Kahneman, it is suggested that the process of decision making is controlled partly by the formulation of the problem and partly by the norms and personal characteristics of the decision makers (Tversky and Kahneman). In addition, human decisions can be shifted when the same problem is framed in different ways. Taking this into account, this study aims to research how the framing of a question can affect the process of human decision making. Does the framing of a question or an action affect the actual experience of its outcome?

Methods

To study the effect of framing on decisions we conducted an experiment with twenty-four university level students. They were divided into 2 separate groups of at least 12 students (N>12) each. Both groups were presented with the 2 different but similar problems. The problem statements and the possible choices were as follows:

Problem 1: Imagine a plane has experienced engine failure and is going to crash. There are 300 people on board. The airline has 2 different strategies to deal with such a scenario. Which of the two strategies would you favor? (Assume that the exact scientific estimates of the strategies are as follows)

A) If Strategy A is adopted, 100 people will be saved.
B) If Strategy B is adopted, there is a 1/3 probability that 300 people will be saved and a 2/3 probability that no people will be saved.

C) If Strategy one is adopted, 200 people will die.
D) If Strategy two is adopted, there is a 1/3 probability that nobody will die, and a 2/3 probability that 300 people will die.

Problem 2: Imagine there is an outbreak of the Marburg virus and 300 people are already infected and expected to die. To tackle this crisis, top researchers have two different

treatment methods. Which of the two treatment methods would you choose? (Assume that the exact scientific estimates of the methods are as follows)

A) If Method A is adopted, 100 people will be saved.
B) If Method B is adopted, there is a 1/3 probability that 300 people will be saved and a 2/3 probability that no people will be saved.

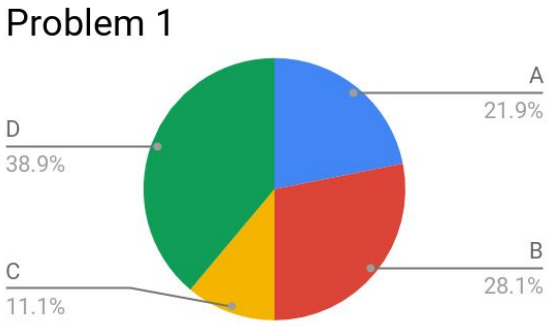
C) If Method one is adopted, 200 people will die.
D) If Method two is adopted, there is a 1/3 probability that nobody will die, and a 2/3 probability that 300 people will die.

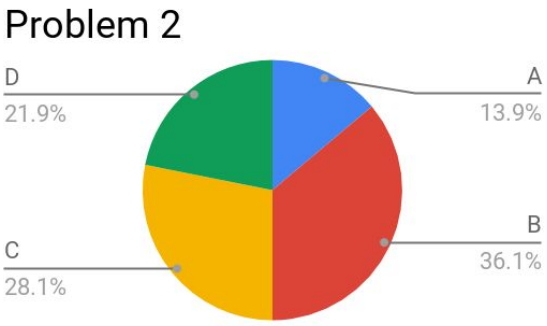
As seen above, each problem had 4 different options. Options A and B were effectively identical to Option C and D in both of the problems, the only difference was that A and B were described in terms of gains(survival format) whereas C and D were described in terms of losses (mortality format).

In both problems, the threat was expressed in terms of the loss of human life and to test how different framings would influence the results, the first group of participants was presented with Problem 1, options A/B and Problem 2, options C/D. The second group was presented with Problem 1, options C/D and Problem 2, options A/B. The results obtained are discussed in the section that follows.

Results

The letters A, B, C, D used in the text and graphs below represent the strategies for the problems explained in the methods section. Survey group 1 consisted of 16 students, group 2 consisted of 18 students. After collecting the answers from both groups it was clear that strategy B and D were favored for both problems. The pie charts are adjusted as to depict the results of the groups as equal so that the answers of group one for problem one (A & B) are equal to group two's answers for the same problem (C & D). Since they were given different alternatives this method provided a simple solution to make further conclusions into the experiment. The same was done for the second problem however, group one's answers are shown as (C & D) as stated in the methods section. The results of the surveys are displayed in the graphs below.



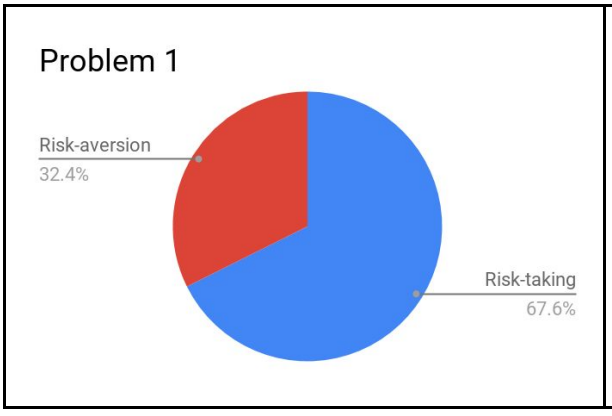


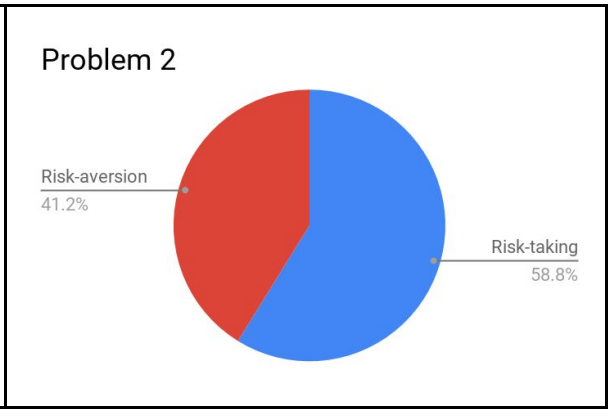
As for the division in each groups the results are as follows. For problem one survey Group-1 favored strategy B with 56.3% against 43.7%. And for the second problem group one favored strategy C with 56.3% against 43.7%.

The results for survey Group-2 were not as close as for the previous group two tilted stronger towards taking risks and opted for strategy D for problem one with 77.8% against 22.2%. The same can be said for the second problem where they again opted for the risky strategy B with 72.8% against 27.2%.

As stated before both groups favored the more risky strategies, however, Group-1 opted for the safer path for the second problem.

As for the the risk-taking vs the risk-aversion strategies taken for each problem disregarding the different framings. As seen in the graphs below it's quite clear that both groups favoured the risk-taking strategies for both problems given in the study.





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Discussion and Conclusion

In our case, we got very similar results for both problems. Both groups were more inclined towards risk-taking strategies and we didn't get the same results as Tversky and Kahneman. In our experiment, different framings of the options did not have a considerable effect on the the groups and the answers that they gave. Specifically, when given the mortality format(people that will die) in problem 1, 77.8% people opted for the risk-taking strategy and 22.2% people opted for the risk-averse strategy. On the other hand, in problem 2, only 43.8% people opted for risk-taking strategy. Moreover, when given the survival format(people that will be saved), in problem 1, 56.3% people opted for risk-taking alternative and 43.8% people opted for a risk-averse alternative, likewise in problem 2, 72.2% people opted for risk-taking strategy and only 27.8% people opted for risk-averse strategy. It can be seen from results that more people opted for the risk-taking option. According to our observation, the respondents might have tried to maximize the output (tried to save more people) and as a result selected risk-taking strategies. In addition to this, as both problems were similar, in terms of the threat(people dying) and the numbers(300 people), the answer to the first problem in the survey could have had an impact on the answer of the second problem. People generally followed the same option(risk-taking or risk-averse) for both of the questions that they had in their survey. This correlation can be seen in the results section where the answers of Group-1 and Group-2 are discussed. We conclude, as Tversky and Kahneman stated, that human decision making is a complex process and it can be altered due to personal characteristics and social norms of people.

References

1. Tversky Amos; Kahneman Daniel, The Framing of Decisions and the Psychology of Choice Science, May 27, 2010