

How Different Information Affect People's Opinions on Nuclear Power

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Preface

It has been thirty-one years since Chernobyl disaster, which occurred on 26 April 1986. And the freshest memory for public about nuclear power was the nuclear accident happened in Fukushima Daiichi Nuclear Power Plant, Japan. Therefore, my original thought about this project was to do research on the nuclear power to see whether it is worthy to be continued. I do lots of research based on two questions: "Do I think we should continue operating nuclear power plants or stop them gradually?" and "The chance of another huge nuclear power disaster before 2050?". However, along with more and more researches I did, I kept changing my minds to these two questions. As a result, I found it is more interesting for me to do research on how people change their mind on the nuclear power issue based on different information they are given.

Introduction

In this project, I am going to analysis how people react to the same question related to nuclear power based on different information.

There are three main sections in this project. In the first section, I made some sample surveys asking people two questions: “Do you think we should continue operating nuclear power plants or stop them gradually?” and “The chance of another huge nuclear power disaster before 2050?” based on giving them different kinds of information such as comparison information, positive information or negative information; or giving them no information. In the second section, I will discuss how people show different reactions based on different given information. In the third section, I will make conclusion about this phenomenon.

Experiment

The experimental survey is shown in the attached file. Data about answers of two questions were collected from Berkeley, San Diego and Los Angeles. Basically, there were five surveys in this experiment. 1. “survey without any information”: they survey was designed to ask people questions before they were given any information about nuclear power and people need to take the survey by their intuition; 2. “survey with basic information of nuclear power”: in this survey, some basic information about nuclear power such as “What is nuclear power?”, “How does it generate energy?”, “Basic Statistic Data”, “History”, “Advantages & Disadvantages” will be given before people take the survey so that people could answer the survey questions with some basic information; 3. “survey with comparison”: people will not only be given some basic information about nuclear power, but also be given some comparison information allowing them to compare nuclear power with other power sources before they take the survey; 4. “survey with negative information”: people will be given negative information before they take survey; 5. “survey with positive information”: people will be given positive information before they take survey.

After giving total five surveys and collecting the survey data, we could analysis how people react with different information when they face the nuclear power question.

Results and Discussion

Survey questions:

1. Do you think we should continue operating nuclear power plants or stop them gradually?
A. YES B. NO
2. The chance of another huge nuclear power disaster before 2050?
A. 0-25% B. 25-50% C. 50-75% D. 75-100%

Below are figures generated by the survey data. Detailed explanations and discussion are given followed by each figure.

Survey 1: without any information

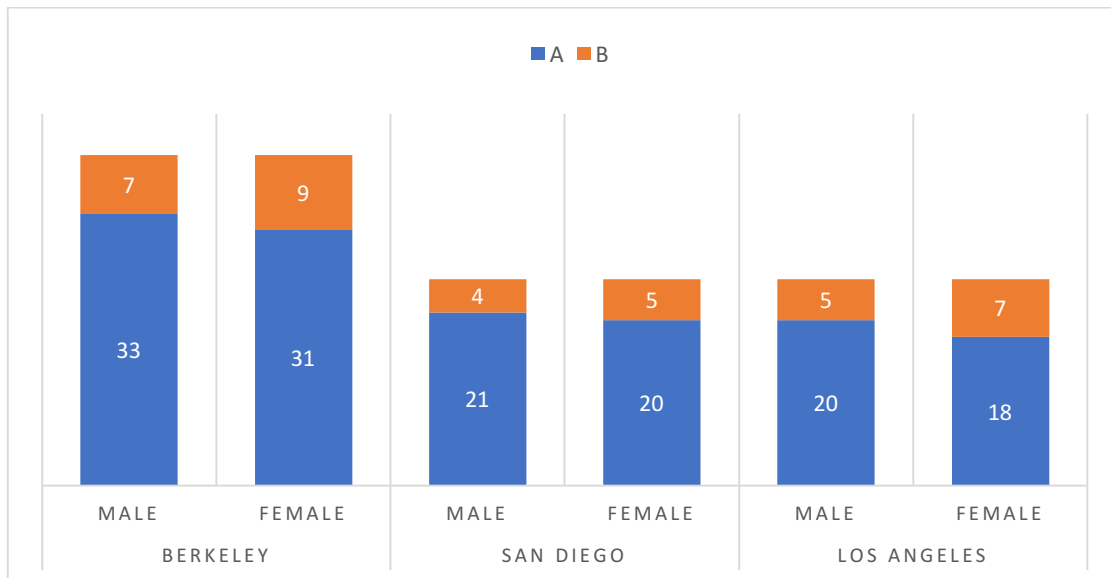


Figure 1: Different Areas Female/Male Responses on Q1 before giving any information of nuclear power

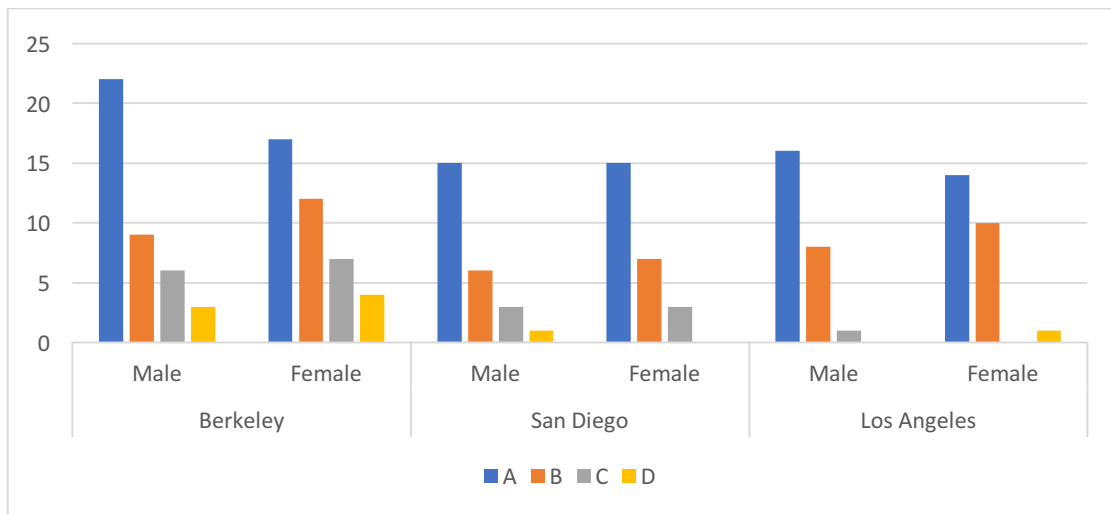


Figure 2: Different Areas Female/Male Responses on Q2 before giving any information of nuclear power

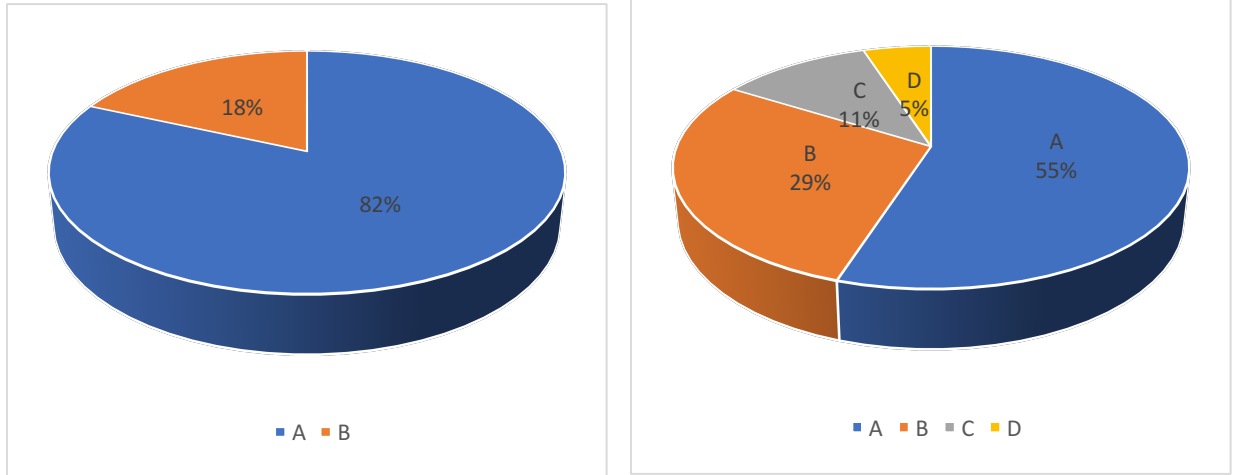


Figure 3: Different Proportions of Choices for Q1 and Q2

From Figure 1 and 2, we can see that people’s opinions about nuclear power have no big difference among different areas (Berkeley, San Diego, and Los Angeles). There is also no big different between females’ opinions and males’ opinions. In Figure 1, we can see that most people think should continue the nuclear power plants while there is small proportion of people think they should be closed gradually. In Figure 3, more than half of people chose A (0-25%), and almost 85% people chose A or B, which means people who took the survey before given any information think that will be a small possibility that another big nuclear disaster would happen in the future. Besides, there was 82% of people chose to continue the nuclear power plants, which means people trust this technology.

Survey 2: with some basic information

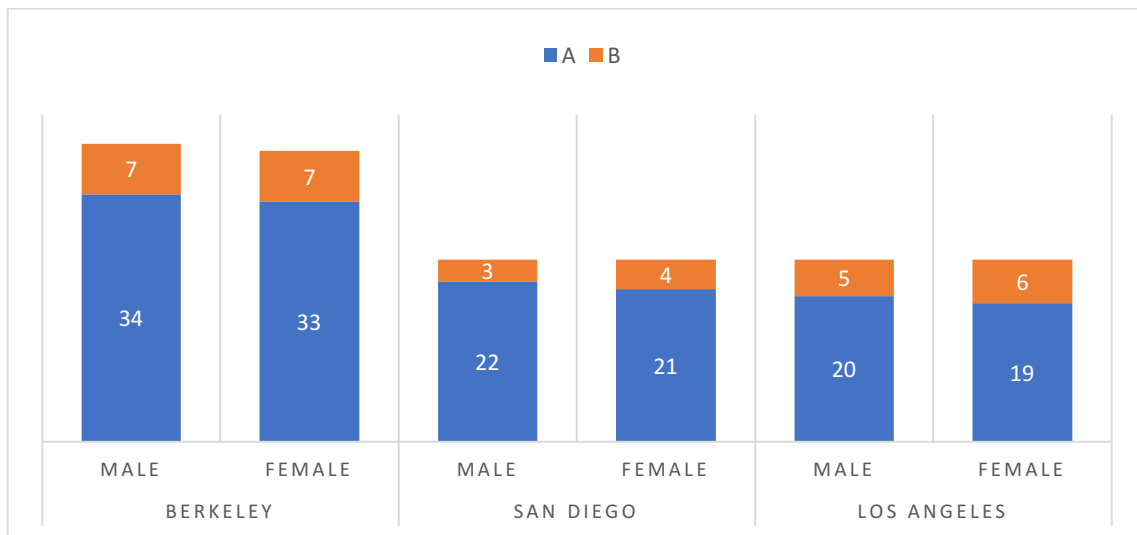


Figure 4: Different Areas Female/Male Responses on Q1 after giving some basic information of nuclear power

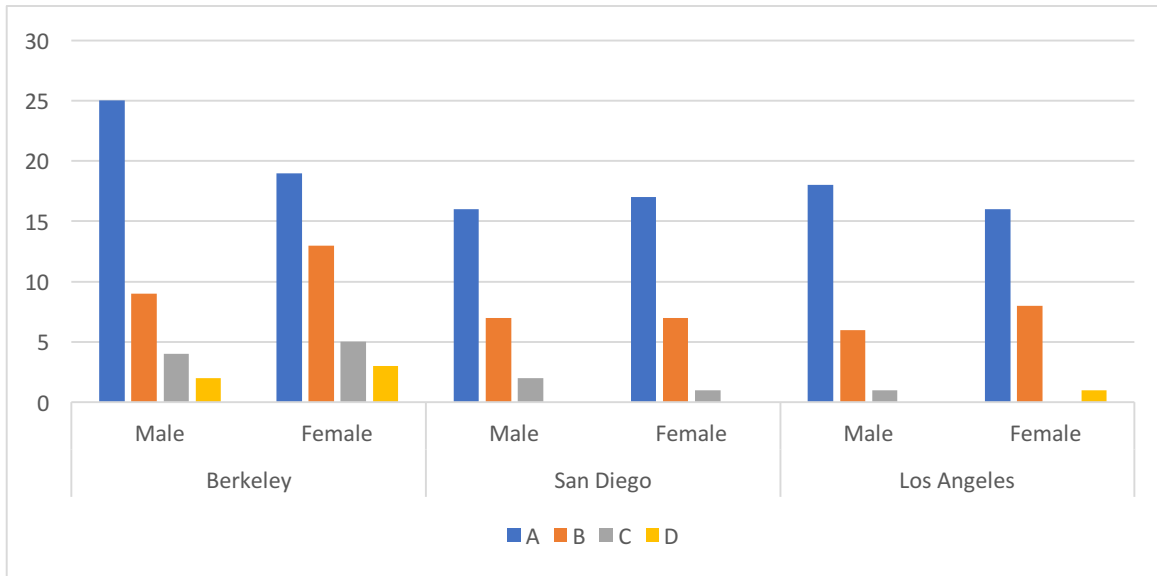


Figure 5: Different Areas Female/Male Responses on Q2 after giving some basic information of nuclear power

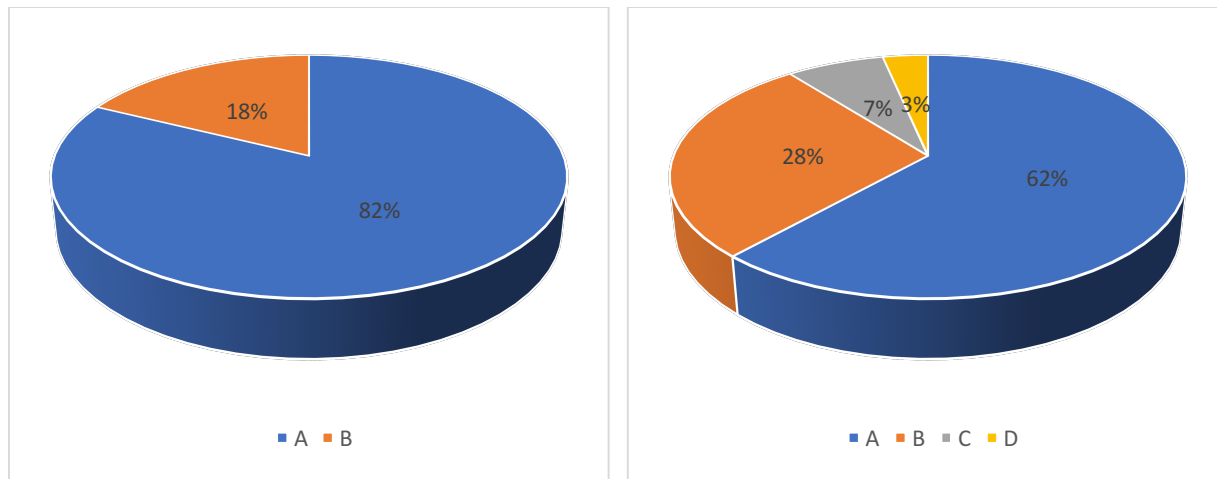


Figure 6: Different Proportions of Choices for Q1 and Q2

We can make the same conclusion as Survey 1 that people's opinions about nuclear power have no differences among different area or sexes. As from Figure 6, we can clearly see that the proportions of choosing A and B are increased after people knowing some basic information of nuclear power. And there is only 10% of people chose A or D! We can say that after some basic knowledge of nuclear power, more people thought the power is safe, and we could use it wisely to generate more energy and protect environment. The probability they thought another disaster happened decrease after knowing.

Survey 3: with comparison information

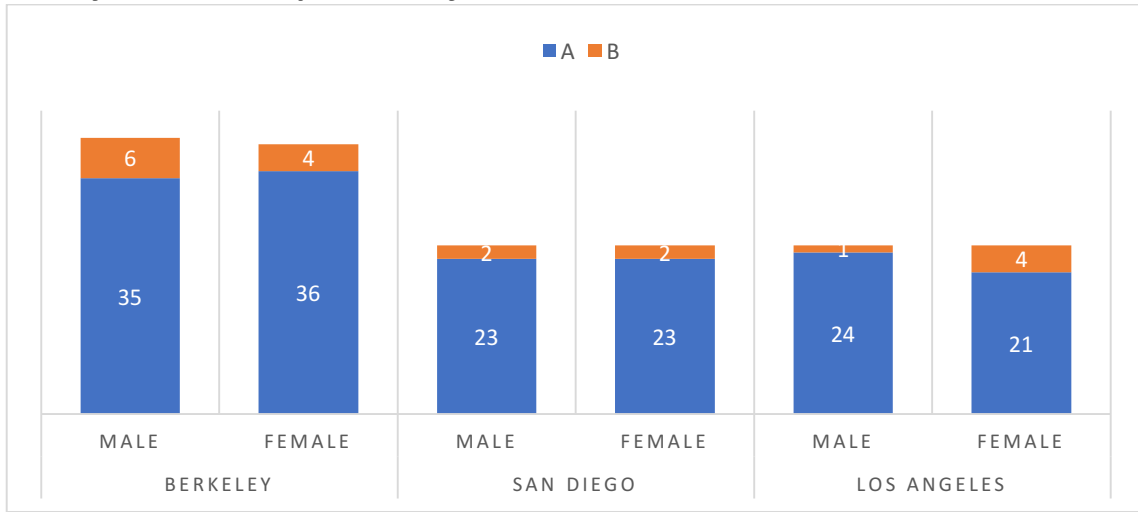


Figure 7: Different Areas Female/Male Responses on Q1 after giving comparison information

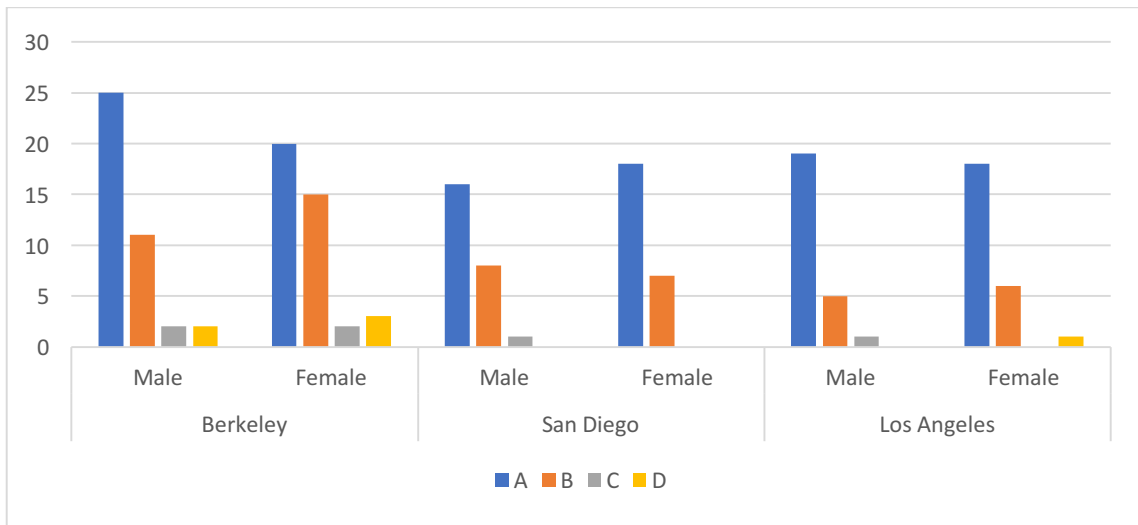


Figure 8: Different Areas Female/Male Responses on Q2 after giving comparison information

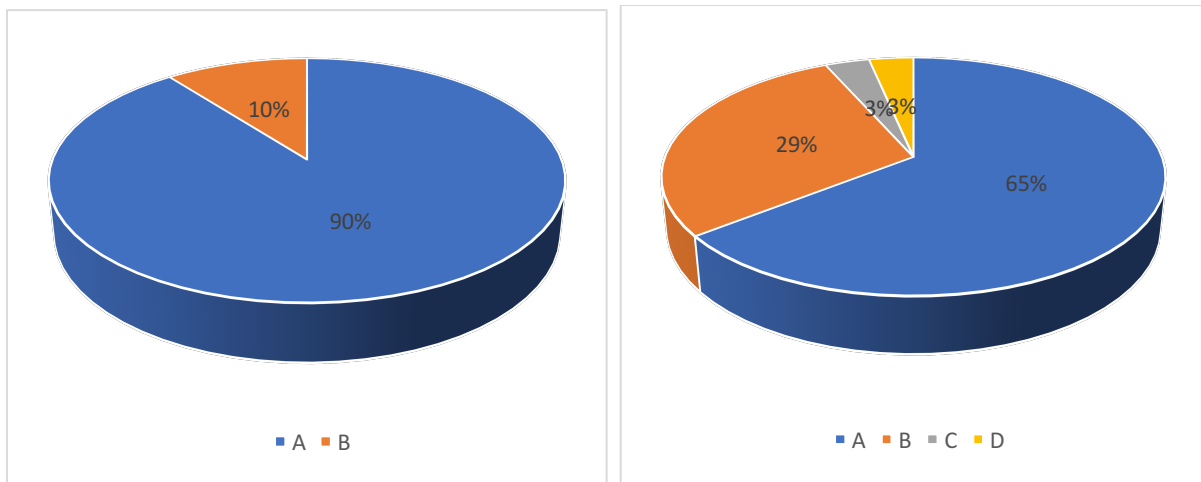


Figure 9: Different Proportions of Choices for Q1 and Q2

We can see the same thing from Survey 3: different area and different sexes do not have difference in the opinion of nuclear power since their proportions are similar. Furthermore, after given some comparison information, more people would like to think that the chance for another nuclear disaster is small (6% people think there will 50-100% for another nuclear disaster happen by 2050) and 90% of them would like to support continuing the nuclear power plants.

Survey 4: with negative information

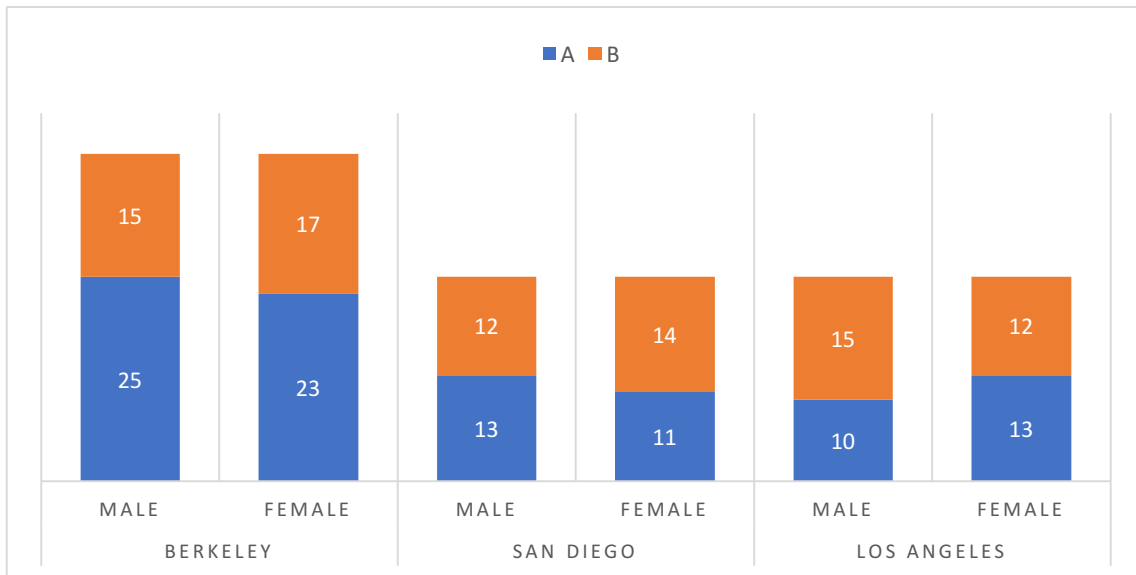


Figure 10: Different Areas Female/Male Responses on Q1 after giving negative information

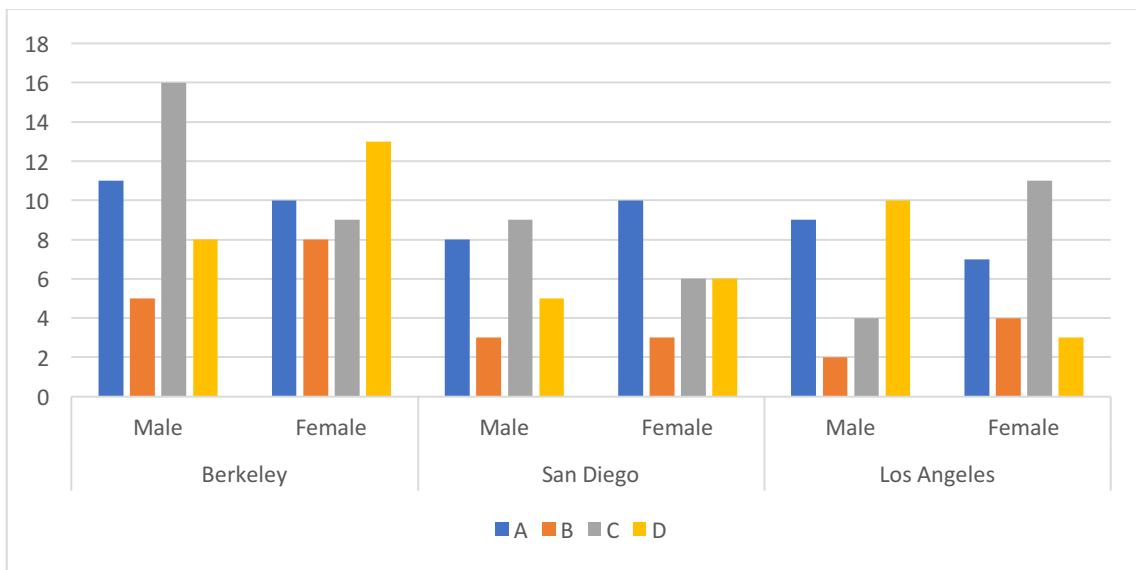


Figure 11: Different Areas Female/Male Responses on Q2 after giving negative information

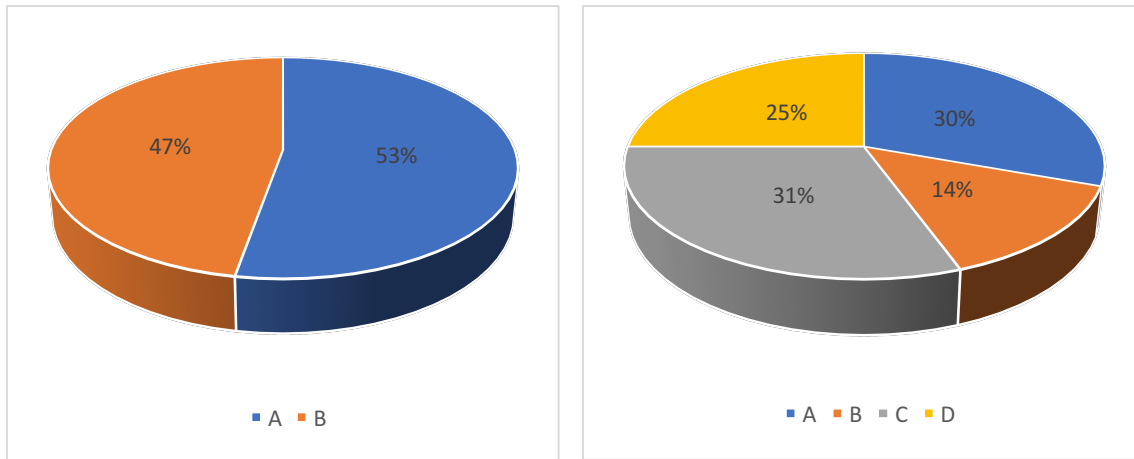


Figure 12: Different Proportions of Choices for Q1 and Q2

We could see a big difference in Survey 4's data compared to the data from Survey 1- 3. Before given this survey, I gave people a negative news from Safety Specialists, MIT. They said, "There is a 50% chance that a Chernobyl event (or larger) occurs in the next 27 years". After knowing this negative information, people's opinions about nuclear power changed a lot. In Q1, unlike the previous 3 surveys, people prefer to continue and stop the nuclear power plants half and half (Note: the proportion of people prefer to continue is much larger than people prefer to stop the nuclear power plants in the previous 3 surveys). In Q2, similar situation happened, instead of choosing A and B, people would like to choose A, B, C, D evenly after knowing the "50% chance" information.

Survey 5: with positive information

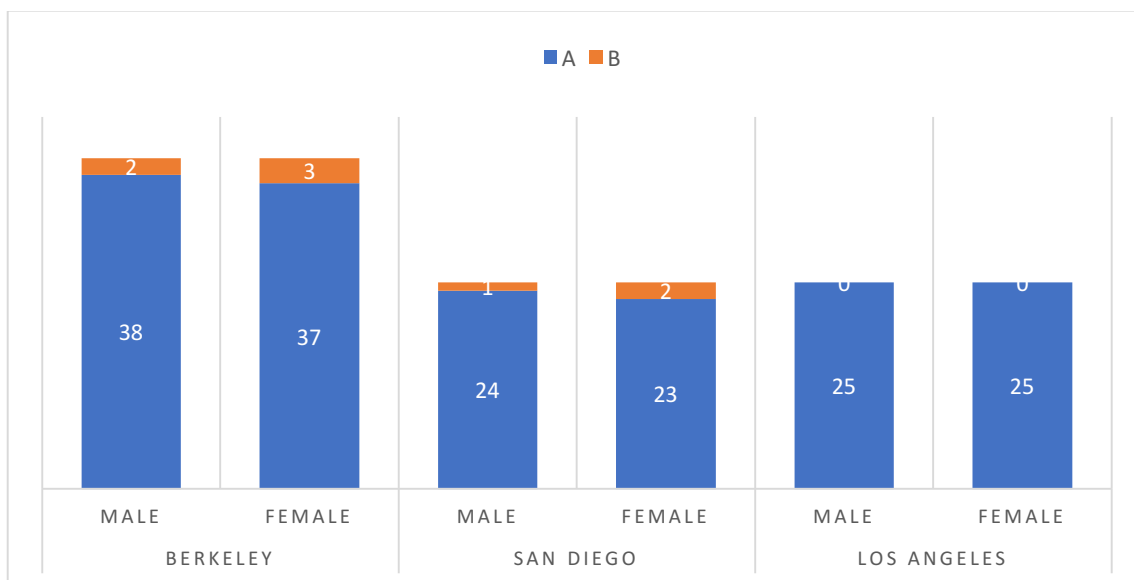


Figure 13: Different Areas Female/Male Responses on Q1 after giving positive information

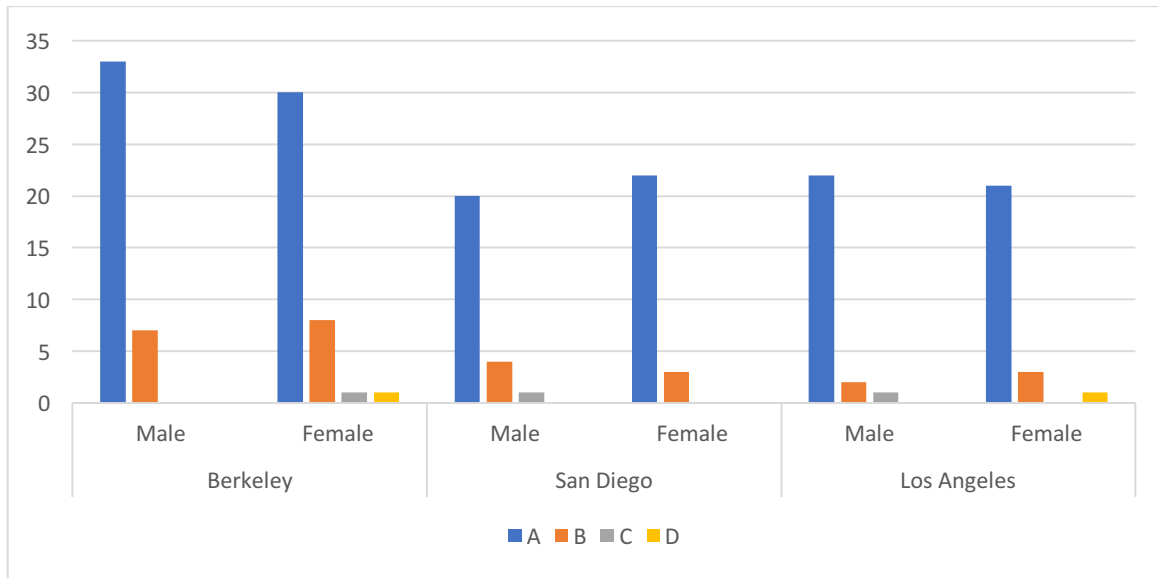


Figure 14: Different Areas Female/Male Responses on Q2 after giving positive information

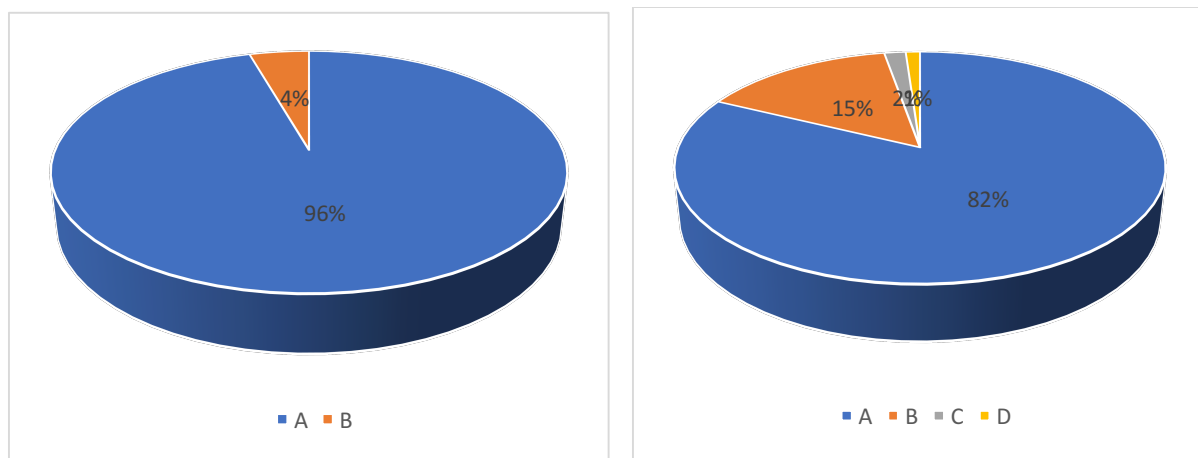


Figure 15: Different Proportions of Choices for Q1 and Q2

There was a totally opposite result after I gave people positive information about nuclear power in Survey 5. After knowing there will be new reactors could replace the current nuclear reactors, which will be safer and could generate more energy, most people changed their minds, and as high as 96% people choose to continue the nuclear power plants, and 82% people thought there will be 0-25% chance another nuclear disaster could happen by 2050.

Starting from Survey 1 to Survey 3, people's supporting keeps increased from knowing no information of nuclear power, knowing some basic information of nuclear power, to knowing some comparison information related to nuclear power. From here, we could say that the more people understand nuclear power, the more they would like to support it. However, the other two surveys showed

how influenced people and social media could affect people's opinions on nuclear power. After given negative information said by Safety Specialists, MIT, many people changed their minds about the nuclear power in a negative way. And if positive information was given, in the opposite, people would like to think the nuclear power in a positive way.

Conclusion

It is obviously that people would have different opinions about nuclear power while different information were given. This survey was interesting because it showed how people react with different kinds of information and the analyzed data allowed us to discover why people react in such a way. In fact, not only is nuclear power, people's reaction to many other things can also be tested by the idea of this survey. It is very normal for people to react differently while they face various information. All I want to say is we all live in the age of information explosion and there are so many probabilities in the real world, we should take advantage of it, use information wisely to help us make more objective decision. Even we could not make 100% objective decision, at least we could try to make it 99.99%.

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