Module 6 Conclusions

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1 Introduction

The topic under investigation is the effect of manipulating design principles in surveys. When designing surveys or other similar things, it is crucial to think about various design factors to get accurate and reliable responses. These principles include payment amount, the amount of guidance given, terminology, time limit, and order of questions. Each of these elements can significantly influence the effectiveness of the survey, potentially impacting the quality of the responses collected.

2 Background

In this experiment, I focused on two design principles: the order of questions and the amount of guidance provided. Before explaining how these principles were manipulated in the surveys, it's important to explore their significance.

The Order of questions is fairly simple, changing the order of questions may invoke different responses to said questions due to a change in context of the question. In other words, earlier questions may influence the way later questions are interpreted, possibly altering the responses.

The amount of guidance is a little more complex of a manipulation, but it is incredibly important. This refers to the amount of information or instructions given for each question. With too much guidance you may frustrate a survey taker as they have to read much more, this may also push them into a time crunch if there is too much to read. However, on the opposite side of this if you give too little information the surveyor may also get frustrated as they feel they won't be able to properly give the correct answer.

3 Method

During this study I designed three different surveys, one control survey and two with modifications to the design principles. I started by creating the control survey that had the questions in an order I deemed logical, I centered this survey around technology, its uses and people attitudes towards it. Once that was completed I modified two of its design principles to generate my two experiment surveys.

The first modified survey I created was reordering the questions. I did this to attempt to trigger different responses via leading them with questions before it. For example in the control survey I had a questions ask "Rank the following new tech in order of you're excitement for them" followed by "Rank the following new tech in order of you're concern for them". This placement will most likely make people not think of any consequences of the tech their most excited for and then think about it for the next question. For the modified survey I swapped these questions so people would have to think of the negatives of the new tech

before their excitement for it. There were many other changes as well to the order in hopes to make as much of a contextual difference in each question.

The second modification I did to the control survey was to give "way too much" guidance on each question. For each question I added over a paragraph of extra text. This extra text added additional details for the survey taker to read and think about before answering the question. This will have two effects, one it may make the survey taker more frustrated at each question as there is more to read, and two it may make them feel in a time crunch if they are slower readers. For the 10 questions survey I gave 10 minutes, which is more than reasonable on the control and reordered survey. But with the extended questions it may take the surveyor longer to answer each question.

4 Results

The statistical analysis of the surveys yielded the following p-values:

Control Survey vs Reordered Survey: 0.28

Control Survey vs Extended Survey: 0.989

Reordered Survey vs Extended Survey: 0.292

None of the p-values fell below the standard significance threshold of 0.05, indicating that the differences between the surveys were not statistically significant. Let's explore some of the reasons this is the case.

Comparing the Control Survey to the Reordered Survey yielded the lowest p-value out of the group. More than likely this means that while the two surveys did produce some amount of differing in response, it was not enough to consider them statistically different. This is most likely because the questions I created did not rely enough on each other to invoke different responses.

The highest p-value occurred when comparing the Control Survey compared to the Extended Survey. This can be attributed to the fact that the additional guidance I added to each question did not fundamentally change the survey takers approach to the survey. I simply tacked on more information to the question, this meant that to a survey taker the quizzes are more or less identical except in the amount of time needed to complete it.

The comparison between the Reordered and Extended Surveys produced a very similar p-value to the Control vs. Reordered comparison. This suggests that, once again, the extra guidance in the Extended Survey did not substantially affect how participants answered, leading to a similar response pattern between these two surveys.

Another statistic I looked at was time to complete the survey. The Control Survey took on average around

91 seconds to complete. This means that the survey takers only needed around 9 seconds per question to answer. The Reordered Survey, however, took slightly less time, averaging 81 seconds to complete. This 10-second difference suggests that the reordered questions may have led to a more natural flow for participants, allowing them to complete the survey more quickly despite no significant change in the responses. That means that more than likely the Reordered Survey actually flowed better to a survey taker than the Control Survey. Unsurprisingly the Extended Survey took much longer at 142.1 seconds on average. This is most likely due to the extra reading required per question.

5 Conclusions

This experiment had a few limitations that may have impacted the results. The first limitation is sample size, I only got 20 people to take it per survey (21 for 2 of them somehow???). While there are ways that more people could have been included in the experiment it would have cost more time and money.

Another limitation is that you could not restrict the location of the survey participants. Participants from different regions may have different perspectives, which could introduce subtle differences in how they interpreted and responded to the questions. Although this limitation applied equally across all surveys, and thus should not have biased any one group more than another, it may have contributed to some of the variability in the results. If location restrictions had been possible, we might have seen more consistent responses, although the overall p-values would likely still remain above the threshold for significance. I would have been most curious on if the p-values between the Control and Rearranged Survey against the Extended Survey would have been even closer than they already are.

Even with some of these limitations this experiment is still incredibly important and much can be gleaned from this. While the statistical differences between the groups were not significant, as evidenced by the high p-values, two important conclusions can still be drawn. First, design principles do influence the way a survey is taken. Even a simple adjustment, such as changing the order of questions, led to differences in how participants approached the survey, particularly in terms of time taken. Second, while design principles are important, they alone cannot fully transform a survey. The most crucial element is still the content itself. Design principles can help narrow down how the survey is perceived or completed, but the core substance of the questions ultimately dictates the quality of the responses. It's possible to create a functional survey without heavily focusing on design, though the results might not align perfectly with the desired outcomes.

Finally, another key takeaway is that design changes, such as extending questions, need to be done with clear intent to impact the responses meaningfully. In my case, the additional guidance I provided was relatively simple, merely adding more text without significantly changing the question's focus. While this

increased the time required to complete the survey, it had little effect on the responses. Had the extensions been more carefully chosen to influence participants thinking or interpretation of the questions, I might have observed different outcomes.